BUILDING CAPACITY IN MONITORING AND EVALUATING ROLL BACK MALARIA IN AFRICA

A CONCEPTUAL FRAMEWORK FOR THE ROLL BACK MALARIA PARTNERSHIP

January 2005

Roll Back Malaria Monitoring and Evaluation Reference Group

This document was prepared by Malaria Consortium and WHO/AFRO on behalf of the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG). MACRO/USAID provided financial support for the development of this document.

The lead authors of the document are Nathan Bakyaita and Graham Root. Significant contributions and comments were made by: Edwin Afari, Abdikamal Alisalad, Erin Eckert, Soce Fall, Khoti Gausi, Ani Hyslop, Matt Lynch, Kate Macintyre, Leslie Mgalula, John Miller, Bernard Nahlen, Walter Kazadi, Notburga Timmermans and Joseph Uchudi.

Table of Contents

Abbreviations

ACT	Artemisinin-based combination therapy
AFRO	WHO Regional Office for Africa
AIS	AIDS Indicator Survey
ANC	Antenatal care
CDC	Centers for Disease Control
CFR	Case fatality rate
CSO	Central Statistics Office
DFID	Department for International Development – United Kingdom
DHS	Demographic and Health Survey
DSS	Demographic Surveillance Site
EANMAT	East Africa Network for Monitoring Antimalarial Therapies
EARN	Eastern Africa RBM Network
EDP	Essential Drugs Programme
EPI	Expanded Programme for Immunisation
GFATM	Global Fund to Fight HIV/AIDS, TB and Malaria
GIS	Geographical Information System
HIV	Human immunodeficiency virus
HMIS	Health management information system
HSSP	Health sector strategic plan
IDSR	Integrated disease surveillance and response
IMCI	Intergrated management of childhood illnesses
INDEPTH	International Network of Demographic Evaluation of Populations and their Health
IPD	Inpatient department
IPT	Intermittent preventive treatment
IRS	Indoor residual spraying
ITN	Insecticide treated net
KEMRI	Kenya Medical Research Institute
M&E	Monitoring and Evaluation
MARA	Mapping Malaria Risk in Africa
MC	Malaria Consortium
MERG	Monitoring and Evaluation Reference Group
MICS	Multiple Indicator Cluster Survey
NDA	National Drug Authority
NGO	Non-governmental Organisation
NMCP	National Malaria Control Programme
PMTCT	Prevention of mother-to-child transmission
PRSP	Poverty Reduction Strategy Paper
RBM	Roll Back Malaria
RH	Reproductive Health
SAMC	Southern Africa Malaria Control
SWAp	Sector-wide approach
TB	Tuberculosis
TEHIP	Tanzania Essential Health Interventions Project
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WANMAT	West Africa Network for Monitoring Antimalarial Therapy
WHO	World Health Organisation

Executive Summary

Since the launch of Roll Back Malaria in 1998, countries in sub-Saharan Africa have made considerable progress in preparing and implementing RBM strategic plans. There has also been a dramatic increase in investment in malaria control in Africa. These investments are increasing coverage of existing as well as new interventions. Tracking the utilisation of this investment will entail considerable capacity building in monitoring and evaluation within Ministries of Health.

The Roll Back Malaria Monitoring and Evaluation Reference Group recognised this need and established a taskforce comprising Malaria Consortium, WHO/AFRO, USAID and UNICEF to prepare a "Conceptual Framework for strengthening monitoring and evaluation of Roll Back Malaria". Information was collected through desk analyses as well as interviews with representatives from 20 countries in Africa.. In the conceptual framework, existing institutional and epidemiological settings within countries are reviewed, then the current NMCP capacity for monitoring and evaluation and the existing opportunities for strengthening this capacity explored, and finally, approaches for capacity development that can be adapted to individual country needs are prescribed.

National monitoring and evaluation systems for Roll Back Malaria vary across countries due to differing needs and epidemiological and institutional settings. When strengthening national monitoring and evaluation systems for Roll Back Malaria, Malaria Control Programmes should take into account these different settings. However, irrespective of the setting, all national Roll Back Malaria monitoring and evaluation systems should be able to monitor and evaluate programme performance. Fully functional monitoring and evaluation systems should have a system of managing data and producing reports, whose periodicity will vary by technical needs and institutional setting. Consequently, monitoring and evaluation capacity development needs will also vary.

Despite significant investment in Roll Back Malaria in the last ten years, monitoring and evaluation has remained weak. There are generally weak Roll Back Malaria monitoring and evaluation systems at national and subnational levels due to limited human resources, lack of equipment, lack of an enabling environment, and weak linkages with other programmes and partners. Despite this, there are a number of opportunities for strengthening Roll Back Malaria monitoring and evaluaton capacity. These include collaborating with other programmes and partners to collect information relevant for monitoring and evaluation as well as sharing available resources and capacity. Health sector reforms and improved funding for RBM present a window of opportunity for strengthening Roll Back Malaria monitoring and evaluation.

Capacity should be built after defining and institutionalising the monitoring and evaluation system. The system should comprise a Monitoring and Evaluation Cell within the National Malaria Control Programme linked to a Monitoring and Evaluation Subcommittee that is part of the Country Co-ordinating Mechanism for

malaria control. The Monitoring and Evaluation Cell needs to be adequately resourced in terms of staff (epidemiologist, data manager, data entry clerk) as well as equipment. Staff should have the necessary skills, clear job descriptions, adequate office and storage space to deliver the products of the monitoring and evaluation system. The Monitoring and Evaluation Cell should link up with other institutions within and outside the Ministry of Health in the form of a Monitoring and Evaluation Subcommittee charged with promoting best-practices in monitoring and evaluatuon and coordinating Roll Back Malaria monitoring and evaluation within the country

National, subregional, regional and global partners have a role in building monitoring and evaluation capacity. The RBM partnership should ensure that there is co-ordinated delivery through the RBM Subregional Networks of relevant, high quality and timely technical support on monitoring and evaluation to countries.

1. Background and purpose of this document

Sound monitoring and evaluation (M&E) of Roll Back Malaria (RBM) at country level is critical if we are to demonstrate progress in achieving outcomes and impact.

Since the launch of RBM in 2000 and the Abuja Declaration in 2001, countries in sub-Saharan Africa have made considerable progress in preparing and implementing RBM strategic plans. Over the last five years, there has been a dramatic increase in investment in malaria control in Africa. The majority of countries in sub-Saharan Africa have successfully submitted malaria proposals to the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM) and have received funding. Other countries have received increased funding for malaria control from Government as well as bilateral sources. These investments in malaria are increasing coverage of existing as well as new interventions, sometimes implemented outside the formal health sector.

Tracking and effective utilisation of all this information will entail considerable capacity building at the level of the National Malaria Control Programme (NMCP), Ministries of Health and other national level institutions that could support RBM M&E.

The RBM Monitoring and Evaluation Reference Group (MERG) recognises the need for country capacity in RBM M&E to be strengthened and wishes to identify specific country level M&E capacity development needs and how best these needs may be met through the sub regional RBM networks and existing institutions with comparative advantage in this area of work.

This document identifies the key functions of a national RBM M&E system, reviews current issues and opportunities that exist at country level, and then makes recommendations on the necessary capacity that should be built to fulfil these functions.

2. Methodology

Existing reports (e.g. AFRO M&E Country Support Missions, NMCP Annual Reports, RBM Needs Assessments etc) were reviewed and already planned fora and country visits[1] were used to conduct in-depth interviews on M&E with NMCPs and key country level stakeholders. At the WHO/AFRO M&E meetings in Harare (July 2004) and Dakar (August 2004), involving a total of 22 countries[2], a "country capacity needs assessment tool" was administered to country representatives. Through document review as well as the responses received from the 22 countries, the objectives of an RBM M&E system and the capacity needed to meet these objectives in different epidemiological and institutional settings were identified.

Other MERG members who are part of the Capacity Development Taskforce (WHO/AFRO, WHO/HQ, USAID, UNICEF, Wellcome Trust/KEMRI) as well as the GFATM were invited to participate in the AFRO M&E Meetings as well as to review, interpret and reach consensus on the findings and the necessary actions needed to develop country and subregional capacity. The writing of the report was done jointly by the Malaria Consortium and WHO/AFRO. Annex 1 gives the Terms of Reference for the development of the framework.

[1] Angola, Benin, Burkina Faso, Cote d'Ivoire, Ethiopia, Eritrea, Ghana, Guinea Conakry, Kenya, Malawi, Mali, Mozambique, Nigeria, Senegal, Tanzania, Togo, Uganda and Zambia.

[2] Angola, Benin, Burkina Faso, Cameroon, Djibouti, Ethiopia, Ghana, Guinea Conakry, Kenya, Madagascar, Malawi, Mali, Mozambique, Nigeria, Niger, DR Congo, Senegal, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

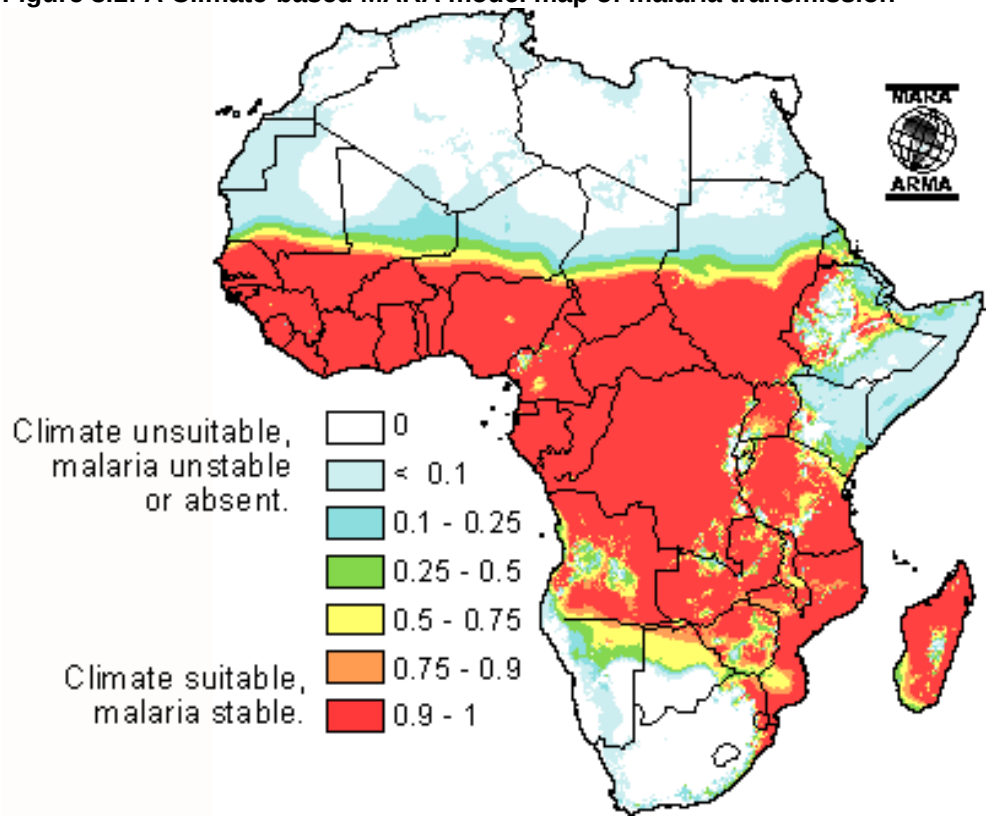
3. Defining a national RBM monitoring and evaluation system at country level

This section defines an RBM M&E system at country level including its objectives, activities and products. However, first it summarises the different epidemiological and institutional settings because these, in part, determine the nature of national RBM M&E systems.

3.1. Malaria epidemiology and control interventions

The demands of malaria monitoring and evaluation in Africa depend on a number of factors reflecting the diversity of malaria transmission patterns and appropriate interventions. Malaria transmission in sub-Saharan Africa is principally determined by climatic factors (rainfall, humidity and temperature). Figure 3.1 shows a climate-based MARA model of malaria transmission that categorises the continent into malaria-free, unstable and stable transmission areas.

Figure 3.1: A Climate-based MARA model map of malaria transmission



Source: www.mara.co.za

Key strategies for malaria control can be summarised as follows:

- Integrated vector control using: 1) insecticide-treated nets (ITNs), which are included in national malaria control plans for all countries in the region, 2) indoor residual spraying (IRS) for targeted areas in countries where it is included in national plans; and 3) various methods of source reduction (e.g. larviciding, environmental management), where relevant.

- Prevention and control of malaria in pregnancy using intermittent preventive treatment (IPT), ITNs and effective case management.
- Prompt and effective case management at all levels of the health system including, where appropriate, at the community level
- Epidemic preparedness and response in countries with unstable transmission areas

As illustrated by Table 3.1, the choice of interventions varies from country to country depending on the endemicity pattern. This, therefore, influences the targets and indicators set, and the type of M&E system that is needed to collect malaria information.

Table 3.1. Interventions and strategies by epidemiological setting

Epidemiological Setting	Intervention/strategy	Examples
Free	***Surveillance and epidemic response*** Active surveillance to inform and guide active case detection and epidemic response (if area receptive to malaria transmission) ***Prevention*** Chemoprophylaxis for travellers going to malarious areas ***Treatment*** Prompt and effective case management in suspected cases Diagnostics to confirm all cases before treatment	Parts of Southern Africa, Ethiopian and Eritrean Highlands. Arid areas (e.g. northern Sudan) Some large urban areas.
Unstable	***Surveillance and epidemic response*** Surveillance; epidemic response capacity ***Prevention*** IRS Larval control ITNs ***Treatment*** Prompt and effective case management in suspected cases Diagnostics to confirm all cases before treatment	Parts of southern Africa (e.g. South Africa, Botswana, Namibia, Swaziland, Zimbabwe) Highland areas in East and Horn of Africa (e.g. Kenya, Tanzania, Ethiopia). Desert-fringe areas (e.g. countries in the Sahelian belt of West/Central Africa) Some urban areas, plantations, irrigation schemes.
Stable	***Prevention*** ITNs, especially for children under-five years of age, pregnant women and people living with HIV/AIDS IRS where appropriate (e.g. in institutions, areas of economic importance) IPT in pregnancy (IPTp) ***Treatment*** Prompt and effective case management, including at the community level where appropriate	Large parts of East, Central and West Africa.

3.2. Institutional arrangements for malaria control

All countries in sub-Saharan Africa have established malaria control programmes or have personnel in the Ministries of Health responsible for malaria control. In addition, they have developed RBM strategic plans and health sector strategic plans (HSSP) that have set targets to be achieved between 2000 and 2015.

Key elements of institutional arrangements for malaria control vary considerably across countries. Highly endemic countries tend to have integrated malaria control programmes. Examples include Uganda, Ghana and Kenya. At the subnational levels,

malaria control activities are integrated into other district activities and are sometimes implemented by both the district health team as well as civil society. At district level it is common for there to be no staff specifically designated for malaria control. Sometimes a 'malaria focal person' is appointed to oversee and report on malaria control activities. However, due to insufficient human and financial resources to do the work, malaria control activities are often neglected.

In such programmes, the main source of data on malaria-related morbidity and mortality is the Health Management and Information System (HMIS). Information submitted from the district to the centre is highly aggregated and can be of questionable quality. Some malaria-specific indicators cannot be obtained from HMIS (e.g. ITN use) and in some countries data that are possible to collect such as on malaria in pregnancy are not collected or if they are, are not reported through the HMIS. For example in Tanzania, Mozambique and Kenya, the information on intermittent preventive treatment (IPT) for malaria in pregnancy is available in the ANC registers but is not reported routinely. Data on care-seeking and ITN use, which are community level indicators, are also not captured by the HMIS system. In addition, occasional surveys by Ministry of Health and various partners are carried out. These tend to be *ad hoc* in nature and use a variety of methodologies making comparisons over time very difficult.

Countries with unstable transmission tend to have more vertical programmes from national to sub-national levels with dedicated staff for malaria control. These include the Southern African countries and countries in the Horn of Africa such as Ethiopia and Eritrea. These programmes tend to be better resourced and produce good quality, reliable data, particularly on coverage of malaria control interventions. Morbidity, mortality and service/intervention coverage data are collected from the community to the national level through a (semi-) parallel system of reporting designed for the NMCP. For example, Eritrea has malaria staff at all levels down to the community level. Under such a system, staff are able to implement and monitor malaria activities more easily. Some interventions, for example IRS, are best delivered through a vertical system. When this is the case, NMCPs often have control on the type of data collected and managed.

Table 3.2 is a summary of these institutional differences that are likely to have a bearing on the M&E capacity needs of NMCPs.

In summary, sound monitoring and evaluation of RBM at country level is critical if we are to demonstrate progress in achieving outcomes and impact. However due to varying epidemiological and institutional arrangements across countries within the subregion, building capacity in monitoring and evaluation will require different inputs and approaches.

Table 3.2. Summary of institutional arrangements

Characteristic	More Integrated NMCPs	More Vertical NMCPs
Human resources	Have dedicated staff at the central level. Often lack dedicated staff at the sub-national and peripheral levels	Have dedicated staff at national and subnational levels of the health system, and sometimes down to the community level
Implementation and supervision of malaria control interventions	National policies and strategies, and development of guidelines Supervision integrated with other programmes. Occasionally, vertical supervision by NMCP staff. Due to the size of and/or poor accessibility within many countries, this kind of supervision is often infrequent, hurried and of limited impact At subnational level, due to other responsibilities, often cannot give adequate commitment and time to malaria control interventions	Malaria control structures from the national level down to the district/community level Vertical supervision of programmes by dedicated staff.
Resources	Limited resources at all levels. Sub-national levels receive block-grants that are allocated according to perceived priorities that may not adequately prioritise malaria control interventions	Malaria control programmes often better resourced (despite often relatively low disease burden). Malaria control often regarded as a priority due to the potential for high mortality in a non-immune population (if outbreaks are not properly controlled).
Monitoring of health programmes	Monitored as part of integrated supervision. Data quality usually poor	Vertical monitoring with good quality data
Evaluation of health programmes	Integrated evaluation. Variable quality information	Both vertical and integrated evaluation. Reasonable quality data.

3.3. What should a national M&E system for RBM produce?

3.3.1. Definitions of Monitoring & Evaluation

It is important to clearly differentiate between monitoring *and* evaluation as they serve different purposes in an M&E system. In essence, monitoring is a routine activity that tracks the performance of a programme. Monitoring reports provide information on progress made in the implementation of planned activities and the constraints and/or bottlenecks that have been faced in implementation of those activities. On the other hand, evaluation refers to periodic assessments of progress made towards attaining the intended results.

Monitoring is the *routine tracking* of the key elements of a programme performance through record keeping, regular reporting, surveillance systems and periodic surveys. Monitoring assists programme managers to determine which areas require greater effort and will identify areas that contribute to improved programme performance. In a good M&E system, monitoring contributes greatly to evaluation. Indicators selected for monitoring will be different depending on the reporting level within the health system and the epidemiological situation of the country. At the global and regional levels, the monitoring efforts focus on understanding and standardizing population-based coverage indicators for recommended interventions. At the national and subnational levels, where efforts to implement interventions are functional,

monitoring of programme inputs (human resources, financing), processes (procurements and supplies, training) and outputs (services delivered by programs) is also needed for understanding the complete picture of program activities for improved performance.

Evaluation is the *periodic assessment* of the change in targeted results that can be attributed to a programme. It attempts to link a particular outcome or health impact directly to a particular intervention after a period of time. It helps determine the value or worth of a particular programme. Evaluations can be used to link any two parts of the M&E framework (inputs, processes, outputs, outcomes, or impact). For example, one could evaluate whether financial inputs are effectively generating the desired training or service deliveries. NMCPs can also commission evaluation of specific interventions targeting particular populations.

3.3.2. Goal and objectives of a national RBM M&E System

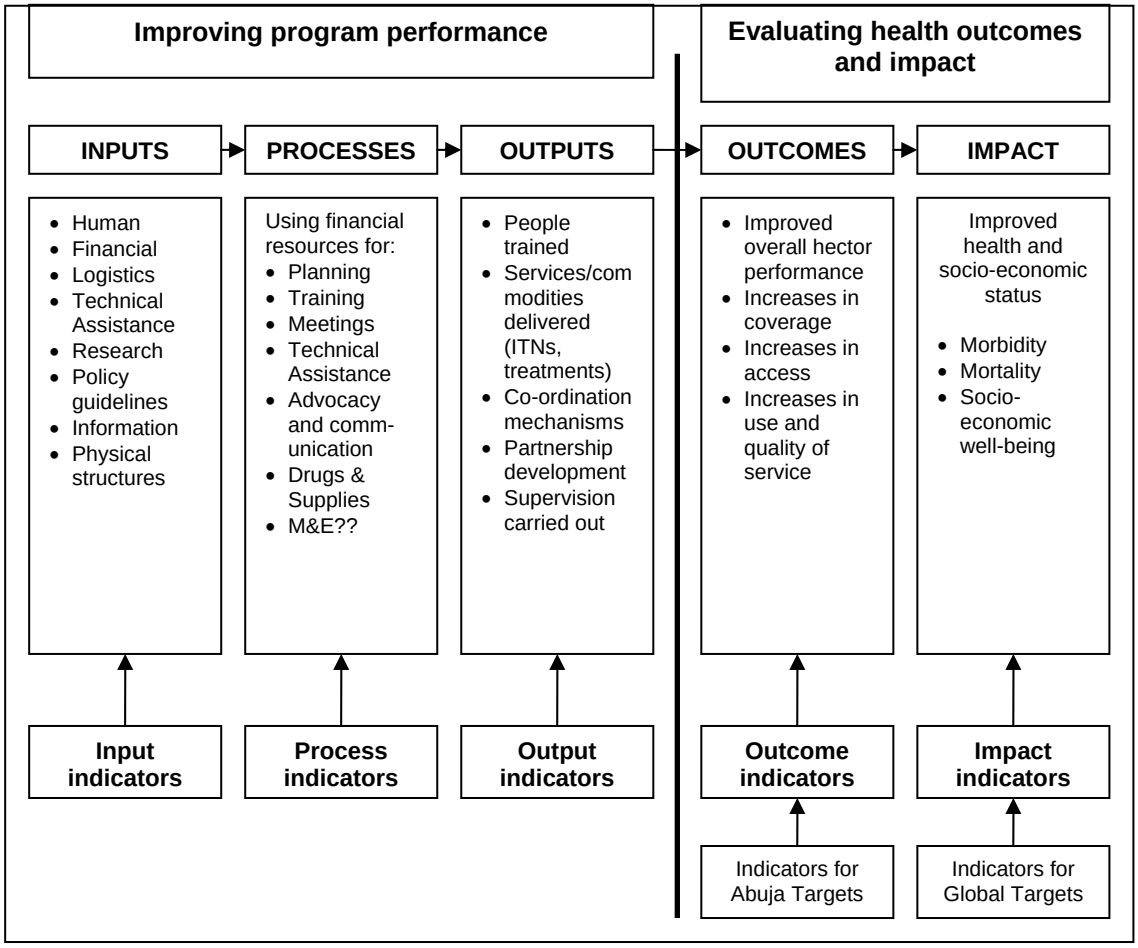
The *goal* of a national monitoring and evaluation system for RBM is to provide reliable information on progress in controlling malaria.

The specific *objectives* of a national monitoring and evaluation system for RBM can be summarised as follows:

- To collect, process, analyse, and report on malaria-relevant information
- To verify whether activities have been implemented as planned to ensure accountability and address problems that have emerged in a timely manner
- To provide feedback to relevant authorities to improve future planning
- To document periodically whether planned strategies have achieved expected outcomes and impacts

Figure 3.2 below shows a basic M&E framework that clearly outlines the inputs, outputs, processes, outcomes and impact. All these should be tracked in a good M&E system.

Figure 3.2. Monitoring & Evaluation Basic Framework



Adapted from Afari, E, Presentation, RBM M&E Meeting, Harare, WHO/AFRO, July 2004 and from Table 2 of the GFATM M&E Toolkit
(see: http://www.theglobalfund.org/pdf/guidelines/pp_me_toolkit_en.pdf)

3.3.2. Activities and tasks

Specific tasks and activities within a national RBM M&E system will depend on the epidemiological and institutional settings (see above). The epidemiological setting will determine the range of cost-effective interventions that can be implemented as shown in Table 3.1. In addition, the data collection and management techniques, including information flow will depend on the interventions in place and the institutional arrangements of the programme.

Main tasks and activities of national RBM M&E systems will include some or all of the following depending on the country:

1. Establish a national framework for M&E of malaria control activities including the adoption and adaptation of core RBM M&E indicators relevant to the particular programme. Depending on the country situation, additional indicators could be added.
2. Advocate for evidence-based planning at all levels of the health system
3. Review public health goals as well as malaria control plans at all levels of the health system to determine the monitoring and evaluation needs.

4. Coordination of monitoring and evaluation processes in country including appropriate partners and relevance of data collected
5. Identify and harness possible sources of data for these selected indicators. This could be done through establishment of formalised links with other departments within the Ministry of Health, other ministries and national research institutions with a view to enhancing operations research efforts.
6. Establish and maintain a multi-sectoral working group or network to provide input and achieve consensus on indicator selection and various aspects of M&E design and implementation.
7. Assess data quality in terms of collection, reproducibility, and quantitative and qualitative data collection techniques.
8. Collect/collate process and analyse data, and interpret and report information resulting from this exercise.
9. Disseminate progress reports on a regular basis.
10. Maintain a good record keeping and filing system as well as an electronic database for all information gathered.

3.3.3. Indicators

Countries use various indicators to measure performance and outcomes of malaria control interventions. Table 3.3 below presents some examples of national level RBM M&E impact and outcome indicators by transmission intensity.

Table 3.3. Examples of RBM impact and outcome indicators

Indicators	**Stable malaria**	**Unstable malaria**
Impact		
All-cause under-5 mortality rate	X	
Malaria-specific mortality counts/rates by age	X	X
Anaemia among children aged 6-23 months	X	
Parasite prevalence rates		X
Confirmed malaria cases		X
Outcomes		
The proportion of children under five (and other target groups) with malaria/fever receiving appropriate treatment within 24 hours (community / health facility)	X	X
Percentage of children under five (and other target groups) with uncomplicated malaria correctly managed at health facilities.	X	X
Percentage of children under five (and other target groups) admitted with severe malaria and correctly managed at health facilities.	X	X
Percentage of health facilities with no stock-outs of nationally recommended antimalarial drugs continuously for one week during the last 3 months.	X	X
The proportion of households having at least one insecticide treated net	X	X
The proportion of children under-five sleeping under insecticide treated nets.	X	X
The proportion of pregnant women (and other target groups) sleeping under insecticide treated nets.	X	X
The percentage of pregnant women on intermittent preventive treatment.	X	
The proportion of malaria epidemics detected within two weeks of onset and properly controlled.		X
The proportion of households in malarious areas protected with indoor residual spraying		X

Source: Roll Back Malaria Monitoring and Evaluation Reference Group (MERG) and Roll Back Malaria, MEASURE *Evaluation*, World Health Organisation, UNICEF (2004) "Guidelines for core population coverage indicators for Roll Back Malaria: to be obtained from household surveys". Measure *Evaluation*: Calverton, Maryland.
Available online:
http://rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9-20_Malaria.pdf

3.3.4. Products

The main products of a national RBM M&E system are:

i. **Malaria data properly managed**
Malaria control interventions generate large amounts of information that should be captured and properly managed. The range of data includes HMIS data, activity reports, commodities and supplies procured, survey data, data from drug efficacy, entomological and insecticide resistance monitoring, operational research findings etc. Such data need to be managed so they can easily be retrieved, analysed and used for the production of M&E reports and the generation of a malaria country profile.

ii. **Monthly monitoring report**
Monthly monitoring reports summarise inputs, outputs and track the implementation of planned activities. An example of a format for the monthly report is a table with the following columns: planned activity; outputs; level of achievement (including constraints); and next steps. This information is useful for NMCPs for tracking progress made in programme implementation and can be used in monthly review meetings and as a tool for re-planning activities. The report should be shared with the immediate supervisor of the NMCP. The monthly reports form a basis for the quarterly reports. The monthly report is used largely by the programme to assess progress made in the implementation of planned activities and for forward planning.

iii. **Quarterly review report**
Quarterly review reports summarise the monthly reports. In addition, quarterly reports should also include information on key process and output indicators against set targets for the quarter. This information can then feed into the (annual) health sector review and planning processes, Joint Review Missions on specific subjects, reviews for the GFATM, etc. The quarterly report is used for reviewing progress and forward planning by Ministry of Health as well as shared with partners through the National RBM Country Co-ordinating Mechanism (CCM).

iv. **National malaria meeting**
This activity is on the calendar of many countries in Southern Africa and in the Horn of Africa such as Eritrea and Ethiopia. Every year, key stakeholders in malaria control come together to review activities of the previous year and to re-plan for the new malaria season. Although this activity is likely to be expensive and may be viewed as vertical, especially in integrated systems, there is good justification for it. With the additional resources available for malaria control by the GFATM and bilateral partners, a considerable amount of work is undertaken by the NMCPs and the districts, often with limited input from the centre. As a result, varied experiences - some of which qualify to be best practices from districts that are documented in national malaria meetings can help improve malaria control interventions in general. The sharing of district-level experiences can contribute to the strengthening of the planning capacity at both national and subnational levels. National malaria meetings may be implemented jointly with sister programmes such as HIV, TB, Reproductive Health (RH) and IMCI.

v. **Annual malaria review and report**

At the end of every calendar or financial year, the NMCP should produce an Annual Malaria Report that objectively highlights key achievements, constraining factors and the way forward. The source of information for the report is from the reports listed above, work done by other partners and special studies. The Annual Malaria Report is used by the NMCP, the Ministry of Health and partners for review and planning processes. Often the Annual Malaria Report will be synthesised and form part of a country's Annual Health Sector Report. For the Annual Malaria Report to be used for planning in the Government system, a draft usually has to be available at the beginning of the fourth quarter of the Government financial planning cycle.

vi. **Periodic evaluation reports**

The information highlighted in the periodic evaluation reports will help guide the direction and emphasis of the programme in the short and long-term. Programme evaluations should ideally comprise internal and external components. NMCPs can also commission special surveys that evaluate specific interventions although these may not always be nationally representative.

3.4. Summary

This section has briefly reviewed the different epidemiological and institutional setting for malaria control in Africa. When establishing national M&E systems for RBM, NMCPs should take into account these different settings. However, irrespective of the setting, all national RBM M&E systems should be able to monitor and evaluate programme performance. In Section Four the current status of national RBM M&E efforts are reviewed to determine whether this is actually the case.

4. An assessment of monitoring and evaluation at country level

4.1. Introduction

In 2003 WHO/AFRO conducted country RBM M&E assessments in 18 countries. The purpose of the country assessments was to assess the capacity for M&E and, explore opportunities for strengthening national M&E systems for malaria control. In 2004, workshops on M&E in Harare and Dakar were attended by 22 countries (see Table 4.1). The purpose of the workshops was to assess country capacity for RBM M&E and to review the WHO/AFRO RBM M&E Guidelines. During the meetings, a questionnaire was administered to all 22 countries (see Annexes 2 and 3 for Assessment Tool and Tabulated Country Responses).

Table 4.1 Countries supported by AFRO M&E Missions in 2003 and attending AFRO M&E Meetings in 2004

Country	AFRO M&E Mission 2003	Attended AFRO M&E meeting (Harare or Dakar) 2004 and completed M&E capacity assessment quetionnaire
Angola,	X	X
Benin	X	X
Burkina Faso	X	X
Cameroon		X
Cote d'Ivoire	X	
Djibouti		X
DR Congo		X
Ethiopia	X	X
Eritrea	X	
Ghana	X	X
Guinea Conakry	X	X
Kenya	X	X
Madagascar		X
Malawi	X	X
Mali	X	X
Mozambique	X	X
Nigeria	X	X
Niger		X
Senegal	X	X
Tanzania	X	X
Togo	X	X
Uganda	X	X
Zambia	X	X
Zimbabwe		X

This section summarises the findings of these country assessments and meetings. It is structured to highlight key issues and opportunities for strengthening of M&E systems under the following areas: human resource capacity within NMCPs, different data collection systems, monitoring and evaluation efforts of other programmes, capacity of country-level partners and financing mechanisms.

4.2. Existing M&E capacity, supervision and co-ordination within NMCPs

4.2.1. M&E capacity within NMCPs and Ministry of Health

Status
NMCPs are usually a part of the Ministry of Health Headquarters under the Division/Department of Epidemiology or Disease Control. These programmes are charged with overseeing malaria control interventions by setting national standards and providing guidelines and technical assistance to the lower malaria control levels, as well as undertaking supervision, monitoring and evaluation.

All the countries assessed had weak and fragmented national level M&E systems for the health sector as a whole. Programmes such as Malaria, TB, HIV, RH and EPI have their own parallel monitoring system. Efforts to integrate these fragmented M&E systems so that they are responsive to the needs of the whole health sector rather than individual programmes have been attempted with limited success.

All the countries assessed had NMCPs with staff and offices. All the NMCPs recognise the importance of M&E and have included this in their strategic plans as well as budgeted funds for this. In Tanzania, an M&E Cell has been created within the NMCP. About 73% of countries reported having an M&E Focal Person, who is usually a staff member of the NMCP with additional responsibilities. The professional profile of the M&E Focal Person varies widely across countries and includes Epidemiologists, Health Technicians, Data Entry clerks etc. Only 45% of NMCPs have appointed a Data Manager and who resides within the programme.

Concerning office space, several NMCP have had new offices built in the last couple of years. However, the majority of NMCPs reported having inadequate space for housing all the staff and very limited storage space for data/information including shelves to store documents.

Most NMCPs have at least one computer. However, most of the available computers are inadequate in terms of numbers and the capacity to handle RBM M&E data. Internet connectivity was available in about one-third of the countries though usually only one computer is connected. Only two countries reported constant internet connectivity for all NMCP staff. Eleven countries have access to photocopiers, while three possess LCD projectors. About half the countries have access to telephone and fax lines dedicated to the NMCPs.

During the AFRO country support missions, NMCP staff received training in data management using Healthmapper, EpiInfo and Access. Although the training was focusing on malaria M&E, staff from other departments collaborating with the NMCP such as HMIS, RH, IMCI, IDSR and also from subnational levels participated in the training. In countries without data managers, a representative from HMIS would be trained in the expectation that they would work closely with the NMCP to harness available data and feed into the database. Eight countries reported that RBM composite databases were created but are not used due lack of the necessary skills, incompatibility with other databases in the Ministry of Health, and late submission of data by the sub-national levels.

Issues

- NMCPs have limited human resources and consequently it has been difficult to appoint staff to oversee M&E issues full-time.
- Where M&E Focal Points and/or Data Managers have been appointed, they have not always been able to perform effectively due to lack of appropriate skills and training. This includes epidemiological and operational research skills, behavioural/social science skills and data-processing and statistical expertise, and resource tracking skills (both financial and commodity resources).
- NMCPs generally do not have an M&E strategy (either within the malaria control strategic plan or stand-alone) to guide implementation of M&E activities.
- Obsolete computer hardware and software and poor internet connectivity

The needs assessment tool included a section on NMCPs' perception of capacity strengthening needs in M&E. These included

- Improvement of data management within the NMCPs. This could be through training in use of the relevant software, appointment of data manager, training in epidemiology, etc.
- Establishment and maintenance of a composite database.
- Skills in networking and coordination with other partners involved in RBM M&E.
- Survey design and implementation
- Logistical and equipment support
- Training of staff at district and provincial levels in data management.

Opportunities

- Greater recognition of the importance of M&E for RBM at country level. This needs to be built on and programmes supported to more clearly define what is needed for successful M&E systems.
- Appointments of M&E Focal Point and Data Managers in some countries
- Availability of additional resources allocated to malaria control and M&E from the GFATM and Development Partners

4.2.2. Supervision

Status

Due to health sector reforms across sub-Saharan Africa, the roles of the NMCP (particularly in integrated and decentralised settings) have shifted to provision of technical guidelines, setting standards and supervision of implementation of malaria control planned activities at all levels of the health system. Through supervision, NMCPs are able to assess whether planned activities are properly implemented.

In some countries, for example Uganda, the centre is expected to provide integrated supervision to all the districts looking at all aspects of the health sector, using a pre-determined checklist.

There have been several capacity-building initiatives in the area of improved case management for malaria at all levels. After the initial training, many of the capacity-building initiatives are not followed up with adequate support and supervision to

assess improvement of performance, due to limited capacity at both the national and subnational levels.

Issues

- Where supervision is integrated, there is little opportunity to focus on malaria-specific issues.
- Where NMCPs provide (non-integrated) technical support supervision on malaria control, they often struggle to provide sufficiently frequent (e.g. every quarter) support to all districts.

Opportunities

- Supervision provides an opportunity to collect information on some indicators that could be harnessed during supervision. For example, using a well-designed checklist, information could be obtained on key indicators such as drug stock-outs, quality of care for uncomplicated and severe malaria, etc.
- Other programmes such as IMCI conduct health facility surveys as part of their supervision that includes observing health workers treating children, etc. NMCPs could carry out such work jointly with IMCI or alternatively delegate the work to IMCI and just utilise the information.
- Resources for the implementation of new policies (e.g. changing to ACTs) or interventions (e.g. IRS) can be used to strengthen support supervision. Initial introduction of policies and interventions can be carried out through on-site support supervision, and included in revised supervisory checklists.

4.2.3. Co-ordination mechanisms for M&E

Status

During the AFRO country assessment missions, countries were encouraged to establish M&E networks that would enhance coordination of M&E for RBM and also improve networking with partners collecting information useful for RBM M&E. The membership for the networks was drawn from the Ministry of Health, research institutions and other partners implementing RBM and collecting data useful for M&E. To date, only four countries reported functional M&E networks (which had met at most three times, with variable results). A few countries have established M&E working groups which act as subcommittee of the RBM Country Co-ordinating Mechanism (CCM).

The assessment missions also revealed that most countries were not aware of other sources of information for RBM M&E either within or outside their respective Ministries of Health. There were minimal linkages with other departments at that time. However, during the 2004 M&E Meetings, there was an increase in the number of countries that reported linkages with HMIS, research organisations, Central Statistics Offices and other partners for the purposes of enhancing capacity for data management.

Issues

- The established/proposed M&E Networks / Working Groups / Subcommittees are not functional in most countries. This may in part be due to them being

insufficiently grounded within the Ministry of Health as well as being under-resourced.
- Terms of reference for the M&E networks and other mechanisms overlap with those of the M&E unit of the NMCP increasing the possibilities of conflict.
- M&E working groups/networks/subcommittees are often not explicitly mandated by the RBM Country Co-ordinating Mechanism to oversee RBM M&E. Moreover, the RBM Country Co-ordinating Mechanism is often only semi-functional in many countries partly due to them being over-shadowed by GFATM CCMs.

Opportunities
- The benefits of co-ordinating M&E efforts of RBM at country level are starting to be recognised by NMCPs and partners. These benefits include:
  - Planning and implementing surveys jointly, including expert opinion on survey tools and methodology.
  - Harmonisation of data collection tools and analysis methodologies to facilitate the comparability of results.
  - Overseeing RBM M&E activities and also promoting best practices.

4.3. M&E within routine data collection systems, sentinel districts and periodic surveys

Various types of general monitoring and evaluation systems and efforts exist within the health sector, including routine data collection, sentinel sites and periodic surveys. These can be used to provide information for malaria control.

4.3.1. Health Management Information Systems (HMIS)

Status
Health Management Information Systems (HMIS) are routine information systems established for monitoring health and disease indicators, as well as expenditure and other management information within the public health sector. These routine reporting systems are the usual source of national data on malaria cases and deaths seen in health facilities. Data from HMIS are crucial for monitoring health facility needs for antimalarial drug supplies and other malaria-related commodities used or delivered through the formal public sector. Where facility data have been most useful is with regard to understanding dynamics of severe disease and case fatality rates among in-patients where the population of interest is those who arrive at the health facility. Although data available from health facilities are potentially useful for monitoring time trends in the number of cases and deaths, HMIS data have severe limitations in inferring trends for program evaluation and impact assessments. In principle, these data are national, but in practice not all facilities and districts report. Reporting from health facilities to districts and from districts to the Ministry of Health varies in its completeness and timeliness and often does not include private and nongovernmental facilities. The numbers of cases and deaths reported are therefore less than the actual malaria burden. More importantly, the clinical burden represents only a fraction of the total burden in the population, since, in areas where the malaria burden is greatest, many malaria patients either do not seek treatment or are treated outside the formal health sector.

Other limitations to malaria data available through HMIS in most countries in African countries south of the Sahara include the fact that most cases of malaria at the peripheral health facility level are based on presumptive and not confirmed diagnosis. Common malaria-associated symptoms and signs (such as fever) are non-specific. Malaria parasitaemia is common among clinic attendees, and a positive laboratory result does not necessarily mean that the patient is ill with malaria. Verbal autopsy is a highly inaccurate method for determining malaria mortality; and many deaths, especially in young children, may be malaria-related rather than attributable to malaria exclusively without concurrent infections. Moreover, a majority of deaths do not occur in hospitals and are not routinely recorded in HMIS. These deaths occurring at home are unlikely to be picked up in vital registration systems, which themselves are usually incomplete.

Therefore, while data from HMIS are useful for local programme planning, use of HMIS attendance data as a proxy for population health is based on the assumption that the population attending health services somehow reflects the health problems of those who do not attend, which is generally not the case. Major investment in improving both the quality of health information systems and access to formal health services will be required before their utility for monitoring changes in malaria disease can be assessed. In some countries, enhancement of HMIS could include randomly selected inpatient and outpatient formal health service sites recruited to act as sentinels for changing disease presentation risks. Changing case fatality, clinical presentation and defined treatment failures will provide important data. These sentinels could form part of enhanced HMIS services and should be guaranteed adequate diagnostics and treatment and capacity to track changing disease burdens.

Issues

- Within the HMIS there are currently only limited opportunities for monitoring and evaluating RBM. Due to incompleteness of reporting and the low specificity of the case definitions used (particularly clinical malaria), the HMIS can rarely be used to evaluate changes in the malaria burden. If it is used for such a purpose, a misleading picture of the temporal changes in the malaria burden may be given. For example, a rise in outpatient cases due to improvements in quality of care offered at health facilities may be erroneously interpreted as a rise in the 'malaria burden'.
- One of the key indicators NMCPs reported using is the malaria case fatality rate (CFR) that is calculated using in-patient data (IPD). Although there have been attempts to collect IPD using the HMIS, very little of these data filters to the national level. The IPD is available at the source of collection but is not summarised regularly or transmitted. Besides, the data are often incomplete and of questionable quality. Due to the problems with accessing this data, the CFR fluctuates very widely over the years and it is proving to be a poor indicator unless IPD collection can be improved.
- NMCPs often have limited or no input into the design and revision of HMIS.

Opportunities

There are however several areas where HMIS data may be useful. These include monitoring of:

- Inpatient malaria case fatality rates (if the above factors are resolved).

- Stock outs of first-line antimalarial drugs. Some countries have deployed the 'tracer drug stock-out system' that uses the 1st line antimalarial treatment as one of the tracer drugs monitored on a routine basis. The NMCP should strongly advocate for this and ensure that it is reviewed in tandem with drug policy changes.
- IPT 1 and IPT 2 (and IPT 3, if used) coverage among antenatal attendees.
- The deficiencies of in-patient data present an opportunity for the NMCPs to assist to strengthen IPD data collection. Working closely with the HMIS, a needs assessment for IPD data could be undertaken and systems set up in hospitals to capture this data on a regular basis.
- Some HMIS data may be able to be used to generate proxy indicators for measuring the impact of malaria control interventions. For example, the ratio of malaria outpatient cases to malaria inpatient cases may be a useful indicator in some settings.

4.3.2. Weekly and monthly epidemiological surveillance data and the IDSR strategy

Status

In addition to the collection of routine data through the HMIS, and data collection by separate disease control programmes, many epidemic-prone countries operate Integrated Disease Surveillance and Response (IDSR) systems. IDSR is a strategy adopted for the purposes of early detection and response to priority communicable diseases for African countries. The system reports on cases and deaths due to the priority diseases.

Most sub-Saharan countries have adopted this strategy, but the methods of implementation vary across countries. For example:

- In some countries, IDSR and HMIS tools are integrated with the same people at district and health facility level collecting the information and reporting to the national level, once a month on the priority diseases and quarterly on the others, mostly non-communicable diseases.
- In other countries, the IDSR and HMIS tools and the collectors are the same except that the information on communicable diseases is reported on a weekly basis to the Epidemiology division or its equivalent, while HMIS data are reported to the HMIS division on a monthly basis. Data generated by IDSR is usually less complete than that generated by HMIS.
- Other countries have developed a parallel system of reporting for IDSR with separate tools, reporting formats, frequency of reporting and where to report at the Ministry of Health departments. This has led to weakening of HMIS in some countries, confusion at the lower levels and overburdening health workers who have to fill numerous forms.

Data generated by Integrated Disease Surveillance and Reporting (IDSR) are available at the central level and are disaggregated by region. Malaria data are included and comprise unconfirmed malaria cases and malaria deaths. Due to the level of aggregation and the gross under-reporting by some (if not all) regions, interpretation of the data is difficult and therefore of little use for monitoring RBM.

Issues

- IDSR data are often incomplete though timely. A number of countries have not fully embraced the IDSR concept, especially when they have very well established systems.
- When IDSR has been established as a parallel system to HMIS, it overburdens health workers and the quality of information generated may be of questionable quality.

Opportunities

- In epidemic-prone countries, NMCPs should work together with IDSR units to ensure that malaria-related data are captured in a way to ensure that they can be deployed for early detection and response.
- The key indicator on epidemic preparedness and response could be measured through the IDSR.

4.3.3. Periodic Surveys

Status

Community-based information on prevention and treatment practices will be critical for monitoring the effectiveness of RBM interventions. The greatest burden of malaria and the greatest need for prevention and control efforts tend to occur in isolated rural settings where a large proportion of cases are managed at home and where, similarly, most malaria deaths occur outside the formal health care setting. In addition, tools to reduce malaria transmission, such as through use of insecticide-treated nets, are by nature community-based. Special household surveys are the most appropriate mechanism for monitoring trends in coverage of insecticide-treated nets and appropriate treatment for malaria. However, community surveys, whether conducted nationally or subnationally, are time-consuming, relatively costly, and require a specialized skill set for designing sampling frames and coordinating field work. At best, comprehensive nationally-representative household surveys can be conducted at 2-3 year intervals, whereas smaller surveys may be conducted more frequently.

Because household-level surveys are often carried out by central statistics offices, non-governmental organizations, or other international agencies, RBM has been working to coordinate household survey level activities among major partner organizations and create standardized methods and questionnaires for assessing relevant malaria indicators. Presently there are three major tools for conducting community surveys which are highly relevant to RBM:

Demographic and Health Surveys (DHS)

DHS are nationally representative household surveys that focus on reproductive and child health. Typically, DHS consist of interviews with between 4000 and 12000 women aged 15-49 years living in households that are sampled in a multiple-stage cluster design. Because the questionnaires are standardized and structured and change little between surveys, DHS results are comparable between countries and over time. Since 1998 specific questions on malaria prevention and treatment have been included in DHS, where relevant. In 2001 these questions were grouped into a standard malaria module which is to be added to DHS conducted in malarious countries. In addition to providing information on the major outcome indicators, the DHS are a primary source

of information on all-cause under-5 mortality rates, obtained by the direct estimation technique (e.g. from birth histories). Recent DHS also measure the prevalence of anaemia by haemoglobin measurement in children under 5 years of age. DHS are organized by MACRO International. Questionnaires and survey results are freely available on the internet approximately 1 year after completion of field work (http://www.measuredhs.com).

Multiple Indicator Cluster Surveys (MICS)
Between 1999 and 2001, the Multiple Indicator Cluster Surveys (MICS) were conducted in 67 countries with support from UNICEF. MICS are nationally representative, with an average sample of around 6000 households sampled through a two-stage cluster design. The standard MICS questionnaire includes questions on possession and use of ITNs and use antimalarial drugs for the treatment of fever among children under five. MICS also provides data on all-cause mortality among children under 5 years of age. Survey results and questionnaires are freely available on the internet (http://www.childinfo.org). The next round of MICS surveys is planned for 2004-2005 and these again will include questions on malaria prevention and treatment.

Malaria Indicator Survey (MIS)
Recently the RBM-MERG has developed a Malaria Indicator Survey (MIS) which may be used at a national or subnational level. The sample sizes are smaller than for the DHS and MICS since the primary use for the survey is to monitor progress in improving coverage of ITNs and effective treatment and not all-cause child mortality. The MIS will, then, be less expensive to conduct than DHS or MICS and can be conducted at a sub-national level if needed. In addition, for operational reasons, both DHS and MICS are conducted during the dry season and, therefore, outside of the peak malaria transmission season, whereas the MIS can be targeted to the peak transmission and combined with measurements of haemoglobin and parasite prevalence, where relevant. The entire MIS package (questionnaire, training manual, guidance on sampling and sampling sizes with costing, etc.) will be available by early 2005 both in hard copy and on CD ROM for dissemination, as well as through the internet.

Countries and partners also commission other surveys such as National Health Surveys, Home Management of Fever Surveys, ITN sales and coverage surveys, RBM baseline surveys, etc.

Issues

- One of the key limitations has been the variable methodologies in the periodic surveys making it difficult to compare with previous surveys and across countries.
- There has often been limited input by the NMCPs into the malaria components of the questionnaires to ensure that the data collected are relevant to country needs. For example, countries may wish to include key malaria control interventions (e.g. IRS) in the Malaria Module of DHS and MICS or the stand-alone MIS surveys.
- The DHS and MICS are usually conducted in the dry season when malaria transmission is less and so may give skewed results especially on use of ITNs in some countries with seasonal transmission.

Opportunities

- As conducting good quality, representative surveys is difficult, NMCPs should actively seek relevant partners already engaged in surveys and take advantage of existing methods for assessing coverage of malaria interventions at the community level. NMCPs should actively give input into the design of questionnaires so that relevant data can be collected.
- RBM has developed a package of recommended tools for assessing coverage of key RBM interventions at the household level. This package known as the Malaria Indicator Survey (MIS) Package, represents the scope of needs for assessing coverage of insecticide-treated mosquito nets (ITNs) based on a full net roster, antimalarial treatment among children under five with fever, and intermittent preventive therapy (IPT) among pregnant women including a standard set of well defined indicators, recommended questionnaire and data tabulation plans for calculation of indicators, and guidance on conducting surveys, designing sampling frames and calculating sample sizes.
- At the global level, there have been attempts to harmonise the tools and timing of the MICS, DHS and MIS so that they collect comparable information and also do not take place in the same year (or close to each other) in the same country.

4.3.4. Malaria sentinel sites (Sentinel Surveillance Systems)

Status

With the current limitations in information collected from routine information systems and the frequency and costliness of household surveys, sentinel sites are an important source of information for malaria monitoring. Currently sentinel sites are commonly used for monitoring the development of antimalarial drug and insecticide resistance. In addition, some countries have sentinel sites for early warning and detection of malaria epidemics that are often part of the IDSR.

With the support of WHO and subregional networks, countries have established sentinel sites for monitoring antimalarial drug efficacy. Networks (e.g. EANMAT, WANMAT I, II) for supporting countries have been established across sub-Saharan Africa. In some countries, the tests are conducted in collaboration with research institutions or are sub-contracted to them. Other studies conducted at such sites include vector susceptibility to commonly used insecticides.

In some countries, the districts with drug efficacy sentinel sites have also been turned into “sentinel districts” for monitoring RBM indicators. For example, Zambia has established ten sentinel districts for collecting additional malaria data. The data are collected by the District Health Management Team, using the same staff used by the HMIS. The experiences so far would suggest that considerable investment is required in terms of personnel and equipment, including regular supervision by the centre.

Issues

- The data from “Sentinel Districts” may provide a skewed picture of RBM effectiveness, since sometimes such districts receive additional resources for interventions that can translate into better programme performance and outcomes in these districts.

- It is not clear whether the number and geographical distribution of these sentinel sites are sufficient to provide representative data and allow extrapolation to the entire country.
- Staff at this level of the health system are very scanty, which compromises ability to collect data of good quality.

Opportunities
- Already established sentinel sites can be used to collect routine malaria data in countries where the HMIS is not functioning well in terms of timeliness and completeness of data reporting.
- Using capacity built at these sites, data on additional malaria indicators could be collected through surveys and special studies.

4.3.5. Demographic Surveillance Systems

Status
At present the most reliable data on trends in malaria deaths in children under 5 years of age is obtained from continuous prospective surveillance such as sentinel demographic surveillance systems (DSS). DSS measure deaths and possible causes prospectively in populations of known size and composition. The DSS use methods which have either total sampling or very carefully constructed, representative sampling methods that avoid the self-selection bias seen in the HMIS and IDS data. There are presently 30 DSS sites in 13 countries in Sub-Saharan Africa producing continuous, cause-specific mortality data. Establishment of additional DSS sites in malaria-endemic areas would enhance the ability to track changes in cause-specific mortality, among children as well as adults.

A typical Demographic Surveillance System (DSS) is a geographically defined population (usually in the order of 40,000 to 100,000 people) in which a longitudinal surveillance system documents all births, deaths and migrations. DSS have rigorous supervisory, quality control and data management systems in order to link events in the numerator to the population in the denominator.

DSSs in developing countries have recently created a collaborative international network called INDEPTH[3]. DSS can be used to obtain in a particular setting an estimate of the current malaria burden (mortality rate by age, group, gender). In addition, data generated can influence national policies for malaria control, document disease trends over time and monitor the effectiveness of RBM strategies.

The data generated can be linked to the HMIS and used for planning health interventions as has been done in Tanzania using the Tanzania Essential Health Interventions Project's (TEHIP) DSS. Tanzania has attempted to establish a "National Sentinel Surveillance System" by linking up their eight DSS sites to the HMIS. The establishment process is still ongoing. In Rwanda, all the sentinel surveillance sites for drug efficacy testing are now also DSS sites. The catchment population of the health facilities which could be as high as 100,000 people is now under continuous surveillance for malaria-related morbidity and mortality.

[3] See www.indepth-network.org.

Issues

- Lack of information sharing between the DSS and the NMCPs within a country.
- DSS are expensive to run and where they are implemented they usually depended on donor funds or research grants to run, raising the issue of sustainability after donor funding has ended.
- Because DSS sites in many countries have been established to conduct intervention trials (either malaria-related or not), the generalizability of data from DSS sites to the national population is questionable. In addition, in most countries no more than one DSS site exists; the frequent variability within the same country in factors such as malaria transmission intensity and access to health services again makes generalizing data from one DSS site to the entire country problematic.
- The experience of linking DSS sites to the HMIS has been limited to Tanzania. Clearly several operational issues will have to be addressed before these linkages can be replicated across SSA.

Opportunities

- NMCPs can endeavour to have malaria-specific data collections included into existing DSS systems.

4.4. M&E efforts of other Ministry of Health programmes

Other national health programmes, such as the Extended Programme for Immunisation (EPI), HIV/AIDS, IMCI, RH and the Essential Drug Programmes (EDP), often operate their own M&E systems.

Expanded Programme of Immunisation (EPI)

As part of EPI surveillance activities, a '*Form for Collection of Health Facility and Community Malaria and IMCI Coverage Data'* was piloted by EPI surveillance officers in Zanzibar and Zambia. This form was developed at AFRO by EPI, IMCI and IDSR. The form, which is a health facility exit interview given to caretakers of children collects data on: ITN use and fever treatment among under-fives; and on the use of ITNs during pregnancy and IPT. In addition, data are collected on oral antibiotics, diarrhoea / ORS and perception on quality of care received. How successful this form has been is currently unclear.

HIV/AIDS

AIDS Indicator Surveys (AIS) collect data on ITN ownership and use.

Integrated Management of Childhood Illnesses (IMCI)

IMCI programmes are usually responsible for malaria case management among children under-five years old. Some countries are also implementing community IMCI which promotes the use of ITNs. Linkages between malaria control and IMCI have been forged at national, district and even community level. Most data on IMCI comes through the HMIS and periodic surveys. Malaria-relevant data will be on effective case management for those children accessing the health care system.

Reproductive Health (RH)
RH is collaborating with NMCPs to implement case management of malaria during pregnancy (MIP), intermittent preventive treatment (IPT) and the use of ITNs. Key information on RH is harnessed through the HMIS. However, even in countries where IPT is implemented jointly by RH and NMCP, data on IPT are not always reported. In Kenya, although this information is available at the point of collection, it is not summarised and transmitted to the national level. On the other hand, in Uganda, the RH has collaborated with the NMCP to modify the ANC cards to include IPT during pregnancy and ensure that it is reported routinely. No country, however, is collecting data on MIP routinely. For pregnant women with malaria seen at the health facilities, case information in the OPD registers does not capture information on pregnancy status. Moreover, it has been difficult to include MIP as a diagnosis in the routine HMIS.

Essential Drugs Programme (EDP)
Effective case management is strongly dependent on adequate and timely provision of antimalarial drugs and supplies. This is the responsibility of the National Drug Authority (NDA), often implemented by the Essential Drugs Programme (EDP).

Opportunities
NMCPs should collaborate with the above programmes in the following areas:
- Inclusion of questions on malaria indicators in IMCI surveys, AIDS Indicator Surveys, AIDS behavioural surveys, RH surveys, etc, where relevant and feasible.
- Harmonise the malaria indicators that different programmes collect so that they are comparable.
- Jointly advocate for revision of the HMIS to collect information relevant for all these programmes. For example, a diagnosis of malarial illness in a pregnant woman should be included in the HMIS.
- NDAs and EDPs could assist in tracking data on supplies of antimalarials, stock-outs at health facility level, quality of antimalarial drugs, provision of antimalarial treatment through private sector drug shops, ITNs, etc.

4.5. Capacity of country-levels partners to support RBM M&E

Various country-level partners also have capacity to support monitoring and evaluation of RBM.

4.5.1. Central Statistics Office

Status
Central Statistics Offices (CSO) are charged with conducting nationally representative surveys including DHS. Most countries have carried out at least two rounds of the DHS and have, therefore, developed experience in managing nationally representative surveys. All DHS conducted after 2000 in countries where malaria is endemic have included a malaria module. Apart from the DHS, there are other nationally representative surveys to which the malaria module could be added. In Uganda, the CSO has been involved in the carrying out of the annual home-based management of fever surveys. The NMCP used the CSO's facilities, human resources and structures in the design and implementation of the survey.

Issues

- Contracting out malaria surveys may have certain drawbacks. The information may not always be presented in the required formats; there could be delays in accessing the information, etc.

Opportunities

- CSOs have significant technical and logistical capacity in the planning and implementation of surveys, including survey design, data collection, data processing, data analysis and report production activities.
- The NMCP should be involved in preparation of the survey and could, for example, negotiate to add a few additional questions to the DHS malaria module, increase sample sizes for certain areas if malaria is more a focal than a national-level problem, work with CSOs to provide denominator information on populations at risk for data analysis related to malaria, offer to assist with analysis of the malaria data to avoid unnecessary delays, provide a format in which the national programme suggests that the data be reported (or, alternatively, have access to the data to produce these tables in required formats), etc.

4.5.2. Research Institutions

Status

Research institutions, including universities as well as independent research firms, generally have capacity for conducting high quality surveys as well as basic and operational research. In several countries, research organisations have been involved in antimalarial drug efficacy monitoring and IMCI impact studies. In addition, research institutions are an important resource in Research and M&E Working Groups / Subcommittees. For example, during the RBM baseline surveys in Kenya and Tanzania, private firms were subcontracted to manage the data.

Issues

- Research institutions may in some situations dominate the research agenda and generate information that is of limited use to NMCPs.
- Researchers may be reluctant to release raw data to the NMCPs for sub-analysis in special situations or circumstances. However, with good collaboration through networking and M&E working groups, the research institutions can be requested to provide this additional data.

Opportunities

- Due to their comparative advantage and expertise, research institutions could be sub-contracted by NMCPs to conduct a wide range of studies and operational research.
- Research institutions could be employed to build capacity of the NMCPs in research and data management.

4.5.3. Other partners

At country level, technical agencies, NGOs and private organisations also have capacity in M&E. At country level, technical agencies can provide additional

expertise to the NMCP in M&E. However, the quality of technical support provided can vary substantially from country to country.

NGOs frequently carry out community level surveys to measure programme effectiveness. In the commercial sector, ITN and insecticide distributors as well as pharmaceutical companies can provide information on the manufacture, importation and sales of different malaria control commodities. The NGOs involved in support of malaria M&E should use the recommended standardized tools and methods and approaches to data analysis and reporting and to be involved with the NMCP and the other RBM partners at the country level in planning their M&E activities. This is especially important in countries receiving GFATM support, which usually involves NGOs.

4.6. The impact of financing mechanisms on national M&E systems

The implementation of certain financing mechanisms, such as joint funding schemes within SWAPs and GFATM funding, can encourage Governments to establish better functioning M&E systems, as these financing mechanisms require reliable performance and outcome indicators.

There are different financing options for programmes within a sector, including traditional project financing parallel to state systems; direct provision of goods and services by donors outside of the state budget; earmarked financing provided to government; pooled financing provided through or parallel to government budget, normally earmarked to specific expenditures; and budget support: general financial support provided through the State budget.

4.6.1. Sector-Wide Approaches, Joint Funding Mechanisms and Budget Support

Status
The Sector Wide Approach (SWAP) defines a method of working between government and development partners. It is a mechanism for co-ordinating support to public expenditure programmes and for improving efficiency and effectiveness with which resources are used in the sector.[4]

In many countries implementing SWAPs, pooled financing schemes are being implemented. Through these financing mechanisms (e.g. Joint Funding Schemes, Basket funds), resources are pooled by Development Partners to support an integrated health sector budget. This enables the respective Ministries of Health to plan according to identified priorities. In response to the Joint Funding Schemes requirement for performance and outcome indicators, the Ministry of Health has set up systems of reporting progress of implementation of the Health Sector Strategic Plan at regular intervals. The reports generated from these regular meetings are used to prepare Annual Health Sector Performance Reports.

[4] For more general information on SWAPs, characteristics and experience of SWAP implementation in the world, see Inter-Agency Group on Sector Wide Approaches for Health Development (2001).

In addition to supporting health sector budgets through joint funding schemes, many donor agencies are also providing direct budget support to developing countries on condition that the latter implement poverty reduction programmes. Recipient countries are required to develop Poverty Reduction Strategy Papers (PRSP), which often mention malaria as one of the countries' health sector priorities and include malaria-related indicators in the performance of the countries' social sectors.

Issues

- Data included in Health Sector Performance reports are often of questionable quality. As of yet, in most countries reviewed, national M&E systems are still inadequate to collect reliable data on national indicators for RBM.

Opportunities

- Further strengthening of joint funding schemes and budget support mechanisms in countries are likely to support countries to set up reliable and functional national M&E systems.
- Strengthening the RBM M&E systems in a country could act as a pathfinder for strengthening /establishing a national M&E system. NMCPs could lobby development partners to support this initiative.
- Inclusion of core malaria indicators in PRSPs and Health Sector Strategic Plans raises RBM's profile as well as increases the likelihood of investment in M&E.

4.6.2. Global Fund monitoring plans and processes

Status

The majority of sub-Saharan countries submitted successful GFATM malaria proposals and have received funds. The GFTAM has recently suggested that 7-10% of proposed budgets be allocated for M&E-related activities[5].

As the GFATM funds are additional, there is a need to set up a robust M&E system that will not only monitor financial and programmatic issues but also demonstrate additionalities. As a result, the GFATM has developed an M&E toolkit that spells out how countries will monitor these three aspects. The GFATM M&E tool kit emphasises the strengthening of already established systems rather than creating new, parallel and unsustainable systems.

Issues

- GFATM monitoring mechanisms require rigorous reporting and accountability. These could potentially burden the countries in terms of workload involved with reporting mechanisms. For example GFATM in Uganda requires monthly and quarterly reports from the programmes receiving the money. There may be insufficient capacity to handle these additional demands.
- There is a potential risk that parallel monitoring systems unlinked to the NMCP might be established.

[5] See 3rd RBM MERG meeting minutes available online: http://rbm.who.int/partnership/wg/wg_monitoring/docs/ThirdMERG_minutes20040920.doc.

Opportunities

- The GFATM disbursement system requires that countries report on a quarterly basis if they are to qualify for more funds. This creates an opportunity to strengthen the M&E systems of the three disease programmes and the Ministry of Health in particular. The additional resources can be used to develop comprehensive and efficient national M&E systems using the three disease entities as pathfinders. This development can be achieved through the integration of M&E systems of the three disease programmes. This will entail review of the individual reporting formats and adopting one that is appropriate for both the GFATM and the Ministry of Health M&E systems for reasons of sustainability.
- GFATM funding generally provide for conducting baseline surveys at the beginning of the implementation of GFATM-funded activities and repeat intermittent surveys during the life of the project.

4.6.3. Other Project Funding

Status

Countries continue to receive project funding from bilateral and multilateral agencies such as the World Bank, USAID, DFID, etc. The projects established through these funding mechanisms often entail the establishment of parallel M&E systems, due to either non-existent M&E systems in countries or donor-specific monitoring and reporting requirements.

Issues

- One of the immediate results of project funding is to increase the workload of the NMCPs in trying to address the M&E needs of the various funding agencies. This is even more critical at the sub-national levels with inadequate staff and resources to conduct adequate M&E activities .

Opportunities

- Often projects set aside 10% or more of their budget for M&E. NMCPs can link up with these projects for developing stronger M&E capacity at country level. These resources should be utilised by the NMCPs to build their capacity for M&E to respond to the needs of the funder but also to the general M&E needs of the programme.

4.7. Summary

This section has reviewed the status, issues and opportunities for M&E of RBM at national level. In summary, there are generally weak RBM M&E systems at country and subnational levels due to limited human resources, lack of equipment, lack of an enabling environment, and weak linkages with other programmes and partners. Opportunities for strengthening RBM M&E capacity include collaborating with other programmes and partners collecting information relevant for RBM M&E and sharing available resources. Health sector reforms and improved funding for RBM present a window of opportunity for strengthening RBM M&E.

5. Building capacity to monitor and evaluate RBM: approaches that can deliver

5.1. Introduction

In this section we will review how national RBM M&E systems can be strengthened in order for them to effectively monitor and evaluate malaria control efforts and deliver the products that were defined in Section 3.4. These products are:

i. Malaria data properly managed
ii. Monthly monitoring report
iii. Quarterly review report
iv. National malaria meeting
v. Annual health sector review and report
vi. Periodic evaluation

First, building on Sections 3 and 4, the components of a national M&E system for RBM will be defined. Then the institutional and human resource capacity development needs of the NMCP given. The role of country-level partners in M&E and co-ordination of M&E activities are reviewed. The section concludes by proposing the role of the subregional RBM networks and regional partners in building M&E capacity for RBM at country level.

5.2. What should a national RBM M&E system comprise?

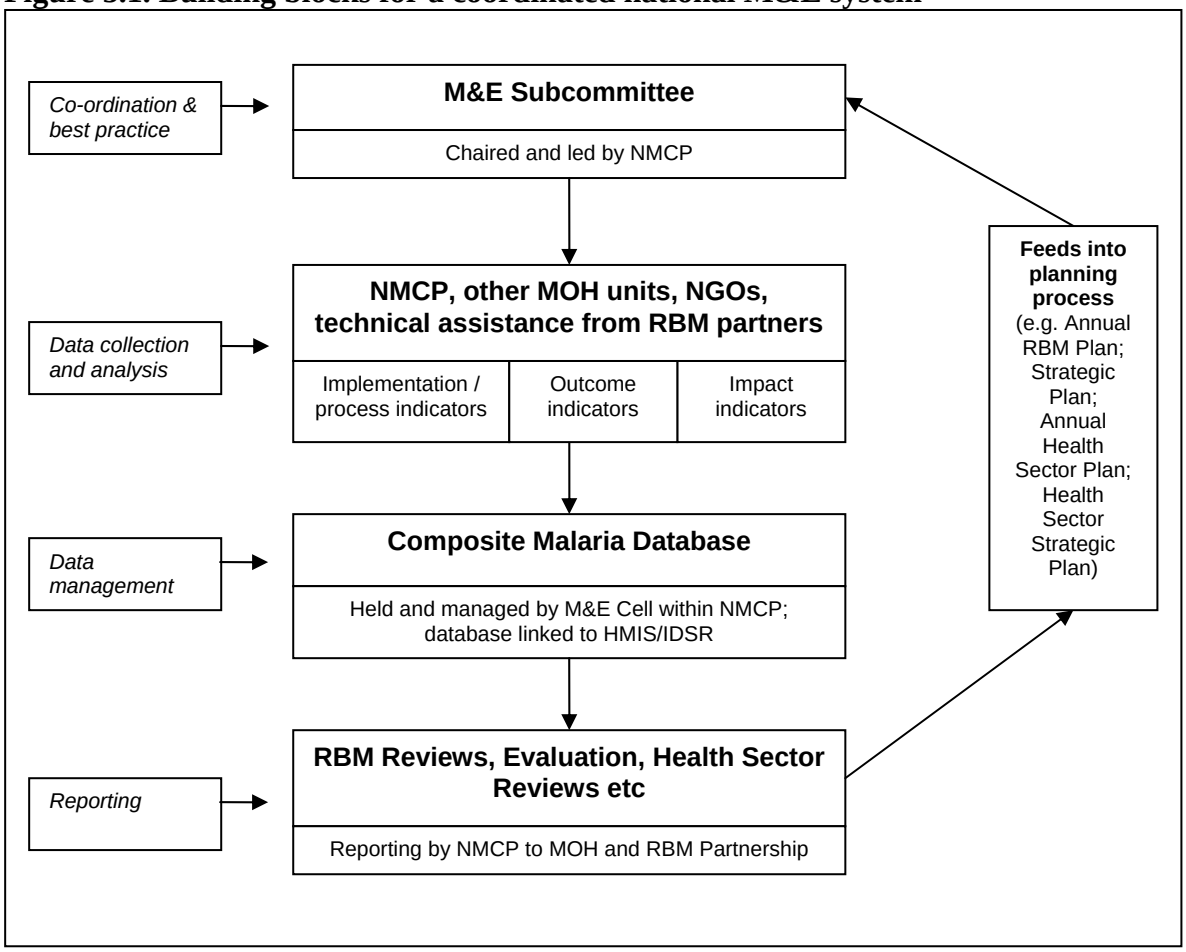
5.2.1. Building Blocks

A functional and co-ordinated national RBM M&E system can be composed of the following elements or building blocks. These are represented schematically in Figure 5.1 below.

The M&E Subcommittee, which reports to the National RBM Co-ordination Committee (or equivalent mechanism), is chaired by the Ministry of Health and ensures coordination of M&E as well as promotion of best practice in M&E. Under the guidance of the M&E Subcommittee, the NMCP, other MoH programmes and RBM partners collect and analyse data on the implementation of planned activities as well as outcomes and impact. Generally, input and process indicators will be collected by the implementing agencies, namely the NMCP, other Ministry of Health units and NGOs. The collection of data for outcome and, particularly, impact indicators is more likely to be a joint effort with the contribution of a range of partners providing technical and/or financial support.

The data collected are fed into the malaria composite database which is managed by the M&E cell within the NMCP. The reports generated by the M&E cell from the malaria composite database are used for the planning and replanning of malaria control interventions. These reports are used at health sector review meetings and other fora and, hence, fit into the overall planning process within the health system.

Figure 5.1. Building blocks for a coordinated national M&E system



Source: G. Root, *Roll Back Malaria Monitoring and Evaluation: Country Needs and Support*, Presentation at Monitoring and Evaluation Reference Group Meeting, May 2003 (include website reference here).

To establish such a system, capacity will need to be built at different levels of the health system as well as among different partners. The amount and type of capacity, and where it will be built will depend on the malaria epidemiology and mix of interventions employed as well as the institutional context.

As discussed earlier, stable transmission countries tend to have more integrated programmes, with fewer staff compared to vertical programmes and with a wider range of responsibilities. Most data comes from the HMIS, is limited in scope to facility-based statistics and of questionable quality and utility for M&E. Data on indicators best collected at the community level are often scanty. In such situations, establishment of sentinel sites to collect some of the missing information may be an option. Capacity for M&E will therefore have to be built at the national and subnational levels where the sentinel sites are located. Countries where malaria transmission is primarily unstable tend to have more vertical programmes with larger staff (or focal points), from national down to the community level. These staff are able to generate good quality data that are collected and reported more frequently on many of the key interventions, particularly those related to vector control.

Table 5.1 summarises capacity needs by epidemiological setting. However, it should be noted that in most malaria-endemic countries of sub-Saharan Africa, there are

several epidemiological settings. Hence, capacity needs are likely to be a mixture of those presented in the table.

Table 5.1. Summary of capacity needs for M&E by epidemiological setting

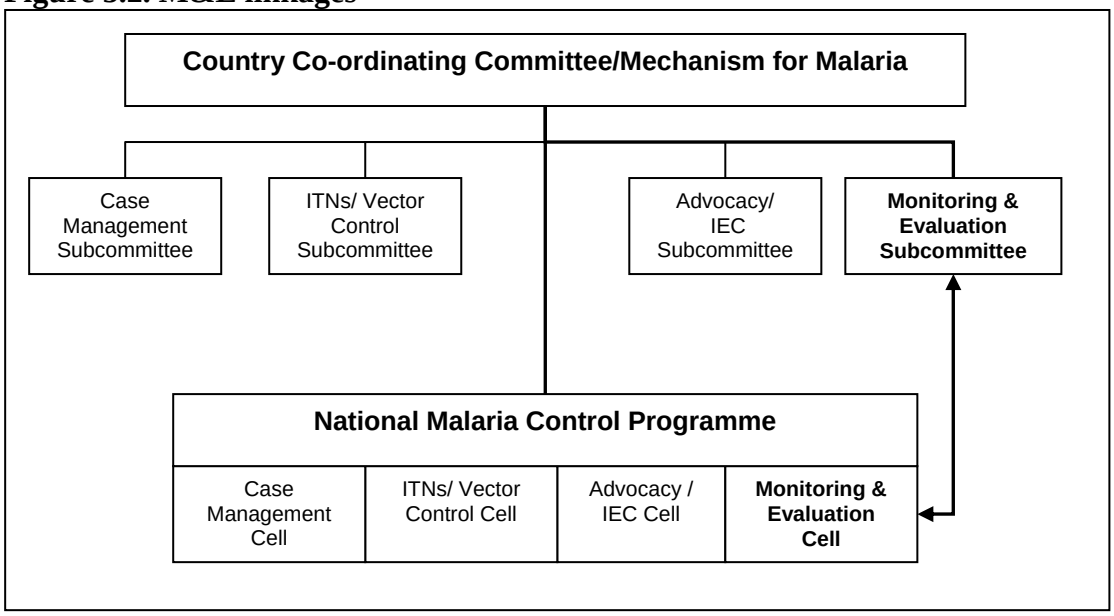
Epidemiological Setting	**Capacity needs**				
	Data management	*Co-ordination*	*Monitoring of interventions*	*Population-based surveys*	*Epidemiology*
Malaria-free	Limited to managing surveillance data	Limited	Limited	Limited	Focus on outbreak detection and surveillance
Unstable	Managing large volumes of programmatic data related to vector control generated by NMCP; other data sources including HMIS	Co-ordination important but majority of data likely to be collected by NMCP	Sentinel sites for entomological monitoring (e.g. quality of IRS, insecticide resistance) and drug efficacy monitoring	Malaria stand- alone surveys including malariometric surveys; qualitative data collection related to specific interventions	Need for continuous review and analysis of weekly surveillance data as well as broad epidemiological skills
Stable	Programmatic data generated by NMCP; HMIS data; data generated by population-based and health facility surveys	Effective co-ordination is essential due to multiple MoH units and external partners collecting, analysing and presenting data	Sentinel sites for predominantly drug efficacy monitoring and limited entomological monitoring (insecticide resistance). In addition, sentinel sites may be necessary to collect key indicators if not available through HMIS or surveys.	Integration of malaria into health surveys; qualitative data collection related to specific interventions	Broad epidemiological skills

5.3. Institutional development within NMCPs

5.3.1. Introduction

Strengthening of M&E within the Ministry of Health should be made a priority. Key elements of a strengthened M&E system include an M&E Subcommittee and an M&E cell within the NMCP whose functions include managing the malaria composite database. Figure 5.2 shows linkages between the M&E cell, the M&E Subcommittee, the NMCP and the Country Co-ordinating Mechanism for Malaria. In addition, there will be linkages between the M&E Cell and relevant units within the Ministry of Health (e.g. IMCI, Pharmacy/Essential Drugs, Planning).

Figure 5.2. M&E linkages



5.3.2. National M&E Subcommittee

A number of countries have already established M&E Subcommittees or an equivalent mechanism to co-ordinate M&E efforts (see Section 4.2.3). It is important that the M&E Subcommittee has a clear mandate and authority to oversee all M&E activities at country level. The M&E Subcommittee reports to the Country Co-ordinating Mechanism for Malaria on M&E efforts within the country. However, they must not replace or takeover the role of the M&E cell within the NMCP. To prevent this happening, the M&E Subcommittee should be chaired by the Ministry of Health and the Secretariat function reside within the M&E cell of the NMCP.

Key functions of the M&E Subcommittee are to:

- Co-ordinate M&E activities for RBM
- Ensure that best practices in M&E be promoted
- Reach consensus on key indicators to be monitored and ensure these are harmonised with indicators used by the overall Health Sector.
- Assure that adequate technical support on survey design, data collection, analysis and interpretation is available
- Identify operational research priorities and review operational research proposals
- Support the M&E Cell to prepare and update the country malaria profile
- Assure that technical support to evaluate RBM on a periodic basis is available
- Mobilise resources to support M&E activities

In order to ensure that programmatic M&E needs are served by the M&E Subcommittee, its composition needs to strike an appropriate balance between members with operational experience and research expertise. Moreover, membership should be limited to partners involved in data collection and/or with relevant skills in M&E. Members are likely to include:

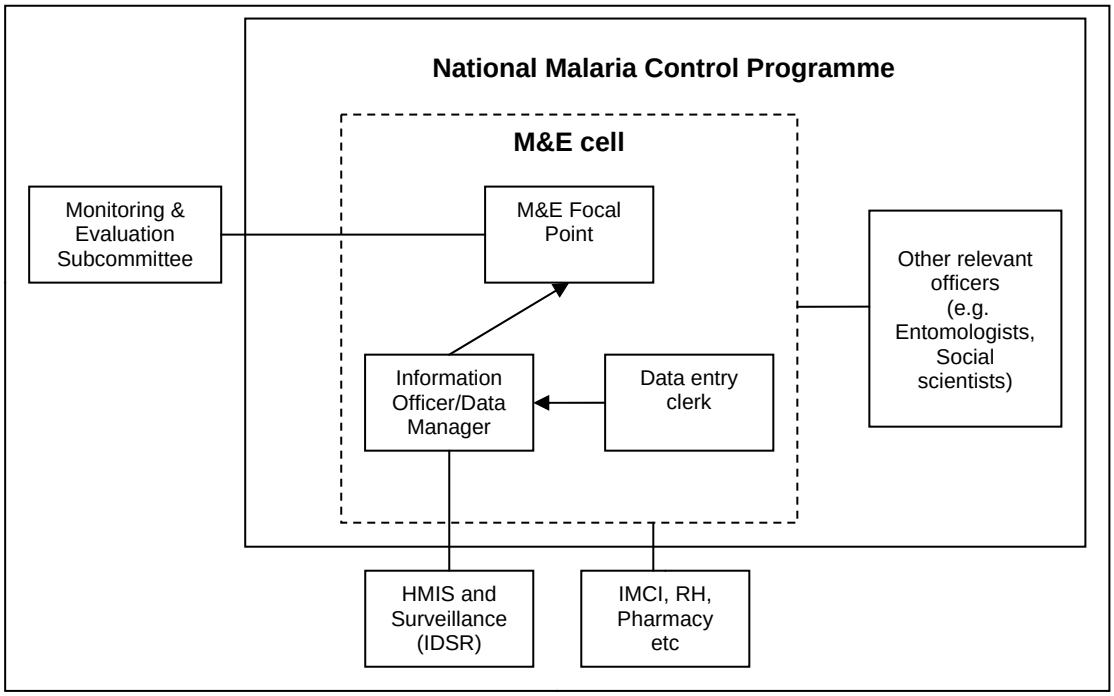
- The M&E Cell and other officers within the NMCP

- Representatives from other Ministry of Health units and departments (e.g. Child Health, Reproductive Health, HMIS, Drugs Management)
- Technical staff (with expertise in M&E) from development partners
- NGOs involved in data collection
- Research institutions and academia
- National/central statistics office

5.3.3. M&E cell within the NMCP

To ensure there is sufficient focus on M&E for RBM within the Ministry of Health, particularly in integrated settings, NMCPs should consider establishing a M&E Cell (see Figure 5.3).

Figure 5.3. Schematic representation of M&E Cell



The M&E Cell should be part of the NMCP and drive M&E efforts in the country. Hence, the cell should have a sufficient number of relevant, trained officers. These will include an Epidemiologist (M&E Focal Point), an Information Officer and, most probably, a Data Entry Clerk. In addition, other officers are likely to periodically contribute to M&E activities within NMCP.

The M&E Cell should have strong linkages to HMIS and IDSR and obtain relevant malaria data (in electronic form) on a regular and timely basis. In addition, functional linkages between the M&E Cell and other Ministry of Health units (e.g. IMCI, Essential Drugs, Planning) should be established and maintained. Strong linkages with these units are particularly important in more integrated programmatic settings.

Key functions of the M&E Cell should include:

- Maintaining a malaria composite database which includes all malaria data

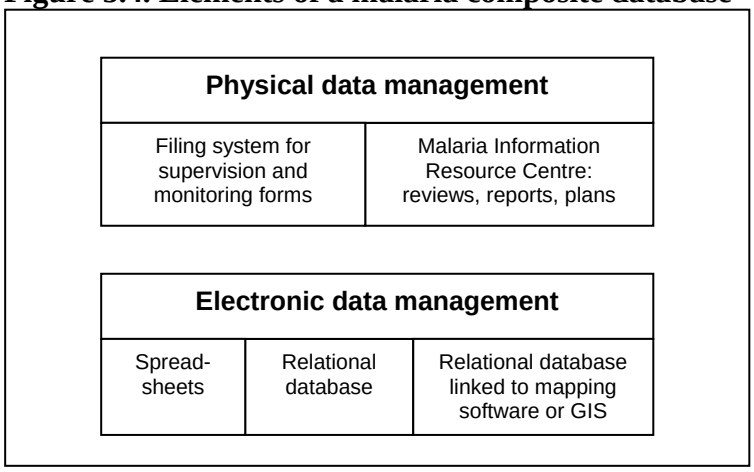
- Establishing and maintaining functional linkages with other relevant M&E units and departments, both within the Ministry of Health and elsewhere (e.g. Central Statistics Office)
- Analysing and interpreting programmatic as well as outcome and impact data
- Responsibility for preparing and regularly updating the malaria profile
- Preparation of quarterly monitoring reports and annual malaria reports and reviews. In addition, depending on need and demand, the M&E Cell can prepare other more user-friendly malaria information services such as bulletins and newsletters
- Develop capacity at the subnational level in M&E, particularly at sentinel sites
- Serve as the Secretariat of the M&E Subcommittee

5.3.4. Malaria composite database

Within the M&E Cell, a functioning malaria composite database is critical if the growing volume of malaria-related data generated by NMCPs, HMIS, other Ministry of Health units, survey-based organizations such as the Central Statistics Offices, NGOs and other partners is to be properly managed and effectively used. To date, there has been an over-reliance on integrated data management systems. Such systems alone will not deliver the products that a national RBM M&E system require.

A malaria composite database should not be developed in isolation, since it should be able to meet the reporting requirements of the NMCP and Ministry of Health. Such a database needs to have strong linkages with other Ministry of Health units that are responsible for the overall monitoring of the implementation of the country's Health Sector Strategic Plan. As an extension of this, M&E of RBM needs to feed into and complement the overall health sector monitoring process. Reports generated should be shared with the rest of the Ministry of Health, RBM partners and be integrated into Health Sector Reports.

Figure 5.4. Elements of a malaria composite database



The malaria composite database should be comprised of two elements: physical and electronic data management. These are presented in Figure 5.4. The importance of physical, as opposed to electronic, data management should not be underestimated. Under physical data management, an accessible, up-to-date filing system for

programmatic monitoring and supervision reports should be in place. Given the large amount of grey literature generated by NMCPs and country partners, a Malaria Information Resource Centre that catalogues policies, strategies, plans, reports, reviews and evaluations would also be desirable.

Ideally, electronic data management should be done using a relational database linked to mapping (or GIS) software. However, it is likely that the electronic data management system will evolve and become more sophisticated overtime. Choice of software and database design should be considered carefully and be compatible with other electronic data management systems in the Ministry of Health. The choice of mapping (e.g. HealthMapper) and/or GIS software (e.g. ArcView, MapInfo, Idrisi) will depend on the needs of the programme. In particular, NMCPs with a strong vector control component that comprises selective IRS, larviciding etc as well as those carrying out active case detection are likely to benefit most from GIS.

5.4. Human resource strengthening within NMCPs

5.4.1. Introduction

Without adequate investment in human resources, M&E of RBM at country level will *not* improve. While the composition of the M&E cell described in the previous section is likely to vary, as a minimum the cell should comprise an M&E Focal Person and Information Officer. Given the marked increase in activities and scaling up of interventions, it is probable a data entry clerk will also be necessary in many programmes.

5.4.2. Skills needed

Epidemiologist/M&E focal person
The Epidemiologist/M&E focal person is responsible for co-ordinating all monitoring and evaluation activities in the programme and reports directly to the Programme Manager/Head of Unit. He/she should have epidemiological and data management skills including the design and implementation of studies. In addition, he/she should have good analytical skills to enable assessment of the quality of data generated by both the programme and partners/stakeholders. Since some of the data may be collected and housed outside the NMCP, good liaison and networking skills are important. (See Annex 4 for draft Job Description).

Data Manager
The Epidemiologist/M&E focal person should be supported by a Data Manager The Data Manager should have skills in managing large relational databases as well as having an understanding of health systems. Other areas in which the Data Manager could assist the programme is in the maintenance of and troubleshooting problems with computer equipment. Although one person could combine the roles of the Epidemiologist/M&E focal person and Data Manager, it is unlikely that the volume of work would be manageable given the current investment in malaria control. (See Annex 4 for draft Job Description).

Data Entry clerk
A data entry clerk could assist the team either on a full-time basis, or on a part-time basis if the NMCP established positions do not include this post. Currently, some Data Entry clerks are also serving as the Data Manager and M&E Focal Point for the NMCP. This situation is highly unsatisfactory and may be one of the reasons why data are poorly managed and inappropriately analysed Many countries assessed requested for the position of a data entry clerk.. (See Annex 4 for draft Job Description).

In addition, to these core members of the M&E cell, other personnel in the NMCP with complementary and specialised skills will be necessary to complete the capacity of the cell. These include skills in ***entomological*** and ***drug efficacy monitoring***. In addition, there is need for expertise in ***social science research*** to design and analyse qualitative data that can be triangulated with the quantitative data already collected by the M&E system. This expertise could either be available in the NMCP or in another unit within the MOH or the academic/research institutions. Lastly, given the increased investment in malaria control, skills in ***resource tracking*** are also desirable. Resource-tracking can be done by experienced administrators or accounts staff linked to the NMCPs.

5.4.3. Increasing human resource capacity

NMCPs and RBM partners should have both short-term and medium-term strategies for increasing human resource capacity in M&E.

Creation of new Ministry of Health positions
In the medium-term, the aim should be to establish sufficient Ministry of Health-funded NMCP-based positions to carry out M&E of RBM. However, within Ministries of Health, the creation of new positions can be very difficult, particularly if these positions are perceived to be encouraging further strengthening of a purely vertical programme. Hence, advocacy for increasing M&E positions within NMCPs should be ready to counter this perception. In addition, the process of approving new positions can be lengthy. Consequently, a short-term strategy comprising staff secondment and in-service training is also necessary.

Secondment of staff
Secondment of staff from other units in the Ministry of Health or from partners can be used to increase M&E capacity within NMCPs. Ministry of Health units such as HMIS and IDSR may have skilled staff that can be seconded to work with the NMCP, often on a part-time basis. However, part-time positions are unlikely to be ideal and staff shared between different units can prove difficult to manage.

Country RBM partners may also be able to recruit and second staff to NMCPs to strengthen M&E capacity. Traditionally, this approach has used *'technical experts'*. This approach may not be appropriate in some countries, particularly when it is skills in data management and basic epidemiology that are most urgently required. Rather the recruitment and secondment of local staff that are managed by staff within the NMCP may be a more appropriate solution. Such staff are more likely to be able to be afforded and taken over by the Ministry of Health when positions are eventually

created. It is important when technical experts are needed that they are carefully selected in terms of their capacity development skills as well as specific technical skills. Moreover, technical experts should be mandated to pass on their skills to the NMCP.

Training

Well-planned and appropriately structured in-service training of existing staff can be used to increase capacity in M&E of NMCPs. The appropriateness of in-service training provided in the past by different partners is questionable. For example, training in managing data in a particular software package that is not routinely used within Ministry of Health. Hence, such training should consider the following points:

- M&E systems and capacity development needs will vary by country. Hence, training that is provided should endeavour to be tailored to the NMCP's needs.
- The workshop approach to training is often insufficient. Rather, on-the-job training and consistent follow-up support visits are required.
- The trainers themselves need to be experts in M&E (e.g. design of protocols and sampling, data collection, management and analysis) and not simply in malaria.
- Training should be supported with use of proper learning and teaching materials, specifically developed for the purpose.
- Subjects taught as part of post-graduate degrees and diplomas often do not address NMCP needs in M&E. Moreover, they usually entail officers being absent from the programme for sustained periods. Shorter, part-time (possibly correspondence) courses tailored to identified needs would be more appropriate.

Particular areas in M&E that need to be addressed with in-service training include:

- Data management

Training should focus on database design that will enable the malaria composite database to link with HMIS and other MOH systems. In some cases, joint training of HMIS staff with the NMCP staff on data management would be appropriate. In addition, training in reviewing data quality is necessary.

- Data analysis and interpretation

The proper understanding of the limitations of different types of data cannot be underestimated. Many NMCPs rely almost exclusively on HMIS data to monitor their performance. Issues relating to changing HMIS case definitions, reporting rates and coverage rates over time need to be fully understood. The limitations of survey data, whether it be due to sampling procedures or the data collection methods used are also essential to understand in order to enhance the ability to analyze and interpret trends.

- Specialised monitoring techniques

More specialised training and experience is needed in specialised monitoring techniques. Examples include drug efficacy testing and monitoring, pharmacovigilance, and insecticide resistance and vector behaviour monitoring. Often such specialised monitoring is delegated to research institutions or done in collaboration with them. Pharmacovigilance is usually conducted by the national medicines agency at specialized sites for prospective monitoring and may be part of a more general and not malaria-specific surveillance system for this purpose. However, it should remain the core responsibility of the NMCP to collaborate with the organisations conducting such studies and ensure that they use standardised protocols

and tools. Consequently, the NMCP needs to have the capacity to network with these organisations, oversee the conduct of the tests, manage available data and analyse and correctly interpret reports.

- Support supervision

Support supervision is carried out by all NMCPs. However, NMCPs should receive training in effective approaches to supervision. This may include the development of supervisory checklists as well as problem-solving (rather than fault-finding) approaches to supervision. Capacity building should also focus on the range of monitoring information that can be collected through such checklists and approaches.

5.5. Enabling environment

Without a proper working environment equipped with the necessary equipment, M&E systems will remain, at best, only semi-functional. Hence, any capacity development plan should include building an enabling environment for the M&E Cell and, more broadly, the NMCP.

5.5.1. Equipment

The M&E Cell should have access to the following equipment:

- Desktop computers, laptops and, where capacity exists to use them, palm-top computers for data collection and initial processing. These computers should have sufficient processor power, memory and hard disk space to run relevant software as well as store large volumes of data.
- Desktop computers should be networked for optimal utilisation of scanty resources (e.g. printers) as well as sharing of data. If the local area network is initially set up in the NMCP, it should eventually link up with other Ministry of Health departments, particularly HMIS/IDSR for easy transfer of data.
- All desktop computers should have email and internet connectivity.
- Database and statistical software as well as updated antivirus software
- Accessories to ensure proper data storage and transfers (e.g. jump drives, recordable CD drives, removable hard disks)
- Storage for paper-based reports and files. This is likely to be in the form of bookshelves and filing cabinets with well-organised and indexed files. “Grey literature” which may not always be available in electronic form would be stored here.
- Printers, photocopiers, overhead / LCD projectors and fax machines
- Telephone connectivity if internet connectivity with district-level teams not possible

All equipment should have service contracts for regular preventive maintenance to optimise and prolong their utility.

Before any equipment is purchased, a comprehensive assessment of available equipment should be done.

5.5.2. Office Space

A functional M&E Cell requires adequate office space. While this is stating the obvious, frequently NMCPs operate in very cramped conditions. Sufficient space is necessary for equipment as well shelving and filing cabinets. The large amount of 'grey literature' on malaria that is available to the NMCPs should be appropriately stored. As much of this information will only be available in paper form there will be need for space to set up a malaria information resource centre.

5.6. Building M&E capacity at subnational and district levels

While it goes beyond the scope of this document to review M&E capacity development needs for RBM at the subnational and district levels, this section will highlight some of the key issues in terms of using sentinel surveillance sites for M&E.

In countries that are large and/or have poorly functioning M&E systems, it may be necessary to establish sentinel sites and/or districts to collect data on key indicators. However, these sentinel districts and sites should be geographically and epidemiologically representative of the country.

A typical sentinel site is usually a health centre or hospital with an outpatient department and in some cases facilities for inpatients, with a defined catchment population. Using modified data collection forms, such sites could provide data on malaria available at source, but not routinely reported by the HMIS. Periodic surveys could also be conducted in the catchment population or the entire district.

The scope of data collected could include:

- Drug efficacy data with the introduction of more efficacious ACTs
- Meteorological data such as rainfall, temperature for sentinel sites in epidemic-prone areas.
- Entomological data: bioassays to assess residual efficacy of insecticides used for IRS.
- Morbidity data including prevalence of parasitaemia, severe anaemia, malaria in pregnancy, disaggregated by age, gender, etc.
- Coverage data on ITN use, access to effective treatment, IPT for pregnant women.

Capacity has already been built in most of the countries for running sentinel sites for drug efficacy and vector susceptibility to insecticides, often at the same sites. Increasing the capacity for these sentinel sites to fulfil these new roles will entail considerable investment. Countries should aim at strengthening what already exists rather than setting up parallel systems, especially in situations where countries already have integrated data collection systems at district level. In addition, there is limited human capacity at the district level in terms of numbers and skills.

Capacity at sentinel sites could be enhanced by training already existing HMIS staff at district level, providing them with computers, ensuring adequate supplies of stationery and other consumables and to providing additional funds for the M&E Cell to

supervise these sites on a regular basis. The data collected can be sent to the NMCP direct as well as shared with HMIS/IDSR.

The work could be contracted out to research institutions but with the full participation of the NMCPs. To offset some of the costs, the sites could be expanded to include other diseases such as HIV/AIDS, IMCI, EPI, etc.

5.7. The country-level RBM Partnership's role in strengthening M&E of RBM

The contribution of the country RBM partnership in strengthening M&E of RBM is essentially two-fold: ensuring partners' efforts are in line with and co-ordinated by the Ministry of Health; and, where appropriate, sharing their capacity and developing capacity in M&E within the NMCP. In addition, the partners should ensure that the Ministry of Health M&E plans are in line with global best practice and recommendations on M&E.

5.7.1. Coordination

Given the limited financial and human resources available at country level, it is imperative that M&E efforts be co-ordinated. This should include partners being willing to:

- Pooling resources or agreeing to fund a common M&E plan.
- Support data collection that will allow the NMCP and Ministry of Health to monitor its core indicators
- collect data using standardised protocols
- provide to the M&E Cell any data collected so it can be incorporated into the malaria composite database

5.7.2. Sharing of capacity and capacity development

Existing capacity among RBM Country Partners should be appropriately utilised. Likewise, capacity development should be tailored to the needs of the NMCP.

Table 5.3 lists the different categories of partners available at country level and gives suggestions for their role in building capacity in the national RBM M&E system.

Table 5.3. The role of country level partners in building M&E capacity for RBM

Type of partner	Current role / activity	Role in strengthening of M&E systems
NGOs and CSOs	Involved in community level malaria control activities (e.g. ITN distribution, IEC) in well-defined areas.	Share activity reports and survey data with the district and national levels. Participate in the M&E Subcommittee
Research Institutions and Academia	Operational research	Could be contracted to train staff, conduct independent studies and evaluations Participate in M&E Subcommittee
Central Statistics Offices	Usually conduct the DHS and other nationally representative surveys. Have expertise and equipment for managing large volumes of data	Contribute to understanding population-based coverage of interventions Contribute to sampling methodologies and data management Participate in M&E Subcommittee
Private and Commercial Sector (ITN manufacturers, importers and sellers, drug companies)	Involved in large-scale manufacture and/or importation and sale of nets, insecticides, drugs and other malaria control commodities.	Can provide information on net imports and sales and other commodity supplies Share reports on periodic surveys and the raw data with the M&E Cell/NMCP.
Development partners	Funding of malaria control activities Commissioning of special studies Advocacy Funding technical assistance	Fund specific activities for the strengthening of M&E capacity
Technical Partners	Active participation in M&E Subcommittee Design and conduct special surveys Adoption of agreed upon indicators	Technical inputs into M&E Subcommittee Second staff to M&E Cell/NMCP.

5.8. Role of the subregion and region in strengthening national RBM M&E systems

Subregional and regional RBM partners have an important role to play in strengthening M&E capacity within NMCPs. At the subregional level, RBM partners are co-ordinating their activities through the subregional RBM networks in Eastern, West, Southern and Central Africa. Members of these networks include technical partners such as WHO, UNICEF, Malaria Consortium, USAID, CDC, Research Institutions etc.

The subregional networks produce and implement annual joint work plans that are updated on a quarterly basis. This method of working should result in the co-ordinated delivery of M&E support to countries. Likewise, rather than organisations' varying M&E methodologies, approaches and systems being promoted; capacity development should focus on strengthening Ministry of Health systems. Globally, the MERG has established a mechanism to reach consensus on some of the approaches to M&E. For example, key indicators and methodologies for conducting surveys. Such work will also support partners providing more co-ordinated technical support in M&E for RBM.

However, the systems for monitoring of planned activities vary across the countries and must be taken into account when providing support for M&E. As previously

described in Section 4, each of the NMCPs and Ministries of Health have some form of M&E system with indicators, methods and periodicity of collection. Although these systems are often weak and not fully functional, they are in line with the countries policies and health sector plan in particular. Therefore, any support for M&E from partners needs to fit country needs, demands and systems.

Capacity development in M&E should take a systematic and step-wise approach. Support should be regular and focus on on-the-job training rather than workshops. The support should be provided by technical partners working through the subregional RBM networks. At the annual subregional network meetings, the countries will be assisted to identify the areas for which they will need support. The coordinators of the networks can then plan to provide this support from among the members or even without, depending on the comparative advantage of each partner in that area.

Support should be provided in the following key areas:

Review of existing M&E systems and indicators
All countries have existing M&E systems and indicators. Where countries are failing to monitor RBM, support should be provided to rigorously review their systems. In addition, support may be necessary on the choice of indicators and how best they should be measured.

Review of existing data
Currently, large amounts of monitoring data are either not being used or being misinterpreted. M&E staff in countries require support to understand the advantages and disadvantages of different data sources and points. In particular, given many NMCPs' reliance on data generated by routine information systems, support on the analysis and interpretation of such data, especially temporal trends, is needed. Linked to this, basic meta-analyses of different data sets (e.g. routine information, data from implementing partners, subnational surveys) that were able to produce composite, if not wholly representative, estimates of key process and outcome indicators would also be beneficial. While such analyses – if using only HMIS data - would not usually be able to give a true picture of the overall burden of malaria, they would help in interpreting trends in the burden of malaria within the health care system.

Data management
Considerable effort by partners, especially WHO/AFRO, has already been invested in supporting countries to establish national malaria composite databases. This support has usually centred on the promotion of a particular software and database. However, to date few countries are using such top-down databases largely because they are perceived by NMCPs as not meeting their own data management needs. Hence, support in data management should focus on building data management skills and database design, using software that is compatible with the countries established system but also able to feed information into the sub-regional, regional and global databases without creating parallel systems of reporting. Such support is urgently needed given the increasing volumes of data generated by NMCPs and country level partners coupled with the current reliance on spreadsheets to manage electronic data. The support could be provided by Central Statistics Offices, research and academic

institutions, sub-regional partners, regional partners, etc, depending on the countries' needs and could be coordinated by the sub-regional networks and WHO/AFRO.

Monitoring implementation

M&E support to date has focused on monitoring outcomes. Although the NMCPs have some form of system for monitoring actual implementation, there is need for strengthening this capacity, following greater investment in malaria control. Given the advent of the GFATM, the importance of properly monitoring inputs and process indicators has grown. Areas where capacity development in monitoring implementation should focus include in tracking investment, commodity tracking and the generation of accurate, timely quarterly activity reports.

Monitoring outcomes and impact

The further refinement of currently available generic M&E protocols for RBM is needed. In addition, countries may require support on the adaptation of such protocols to suit their own needs. For example, countries in Southern Africa have requested that standardised questions on IRS be included in the DHS and other national and sub-national surveys. Zimbabwe has included some questions on IRS in the DHS 2005.

Other areas of support that may be required include:

- Measuring the *quality* of interventions
- The design and conduct of population-based surveys
- The design of pre- and post-intervention surveys to measure the impact of different interventions at a programmatic level.

Evaluation

Evaluation of country RBM Strategic Plans will be necessary over the next three years. The subregion and region should support countries in planning for the evaluation as well as be members of the external evaluation teams.

Sharing and dissemination of progress in RBM

Subregional level

The Annual Review and Planning Meetings organised by the subregional networks are currently used as a forum for countries to present progress reports for the previous year. Most of these reports are devoid of data and information on key indicators due to weak M&E at country level. It is possible to use such meetings to build capacity in reporting. During the planning and re-planning sessions, emphasis should be put on ensuring that the correct indicators are selected and systems for collecting this information are developed.

The annual review meetings, if well planned and protocols developed, are a useful opportunity to collect information on implementation progress. Such information should be used to prepare subregional updates that give an indication of the status of implementation of RBM in countries at the subregional level. Such updates could be modelled on the annual East Africa RBM Update publication produced by the Eastern Africa RBM Network (EARN) and the annual Southern Africa Malaria Control (SAMC) progress reports.

Global level

The subregion and region should take responsibility to feed data upwards to the global RBM partnership. This would take the form of the subregional networks collecting data from the countries through the various existing channels and synthesising it into a form that is usable at the global level.

By effectively performing this function, the subregional networks will reduce the pressure on countries that they now have in terms of reporting to a wide range of partners at multiple levels. In addition, all RBM partners should agree to a common reporting format and frequency of reports. This may be somewhat different from what the country may require for programme monitoring, but could be achieved by working with the development partners, GFATM and other funding agencies to accept a common report.

6. Conclusions

In this conceptual framework we have reviewed the existing institutional and epidemiological settings within countries, examined the current NMCP capacity for M&E, explored the existing opportunities for strengthening this capacity and prescribed approaches for capacity development that can be adapted to individual country needs.

The national M&E systems for RBM vary across countries due to differing epidemiological and institutional settings. Despite heavy investment in RBM in the last 10 years, M&E systems have remained weak due to limited human resources, lack of equipment, lack of an enabling environment, and poor linkages with other programmes and partners. Collaboration with other programmes and partners collecting relevant information, sharing available resources, health sector reforms and improved funding for RBM present major opportunities for strengthening RBM M&E.

Capacity can only be built after defining and institutionalising M&E for RBM by establishing an M&E Cell and constituting an M&E Subcommittee. The M&E Cell should have operational funds, skilled staff, adequate office and storage space for a functional M&E system. The staff should also link up with other institutions within and outside the Ministry of Health through an M&E Subcommittee charged with overseeing and promoting best-practices for M&E.

The role of national, subregional, regional and global partners in building M&E capacity will vary. However, the RBM partnership working through the RBM sub regional networks should ensure that there is co-ordinated delivery of relevant, high quality and timely technical support on M&E to countries.

Over the next ten years, there is an unprecedented opportunity to control malaria in Africa. Establishing sound M&E systems for RBM at country level are necessary if this opportunity is not to be missed. Effective, functioning M&E systems will improve programme performance as well as track outcomes and impact. To achieve this, countries and partners need to invest significant and sustained human and financial resources in building M&E capacity for RBM. Without such commitment and investment, in ten years time there is a risk that we will not know how successful we have been in controlling malaria. Likewise, programme performance will be sub-optimal due to a lack of sound monitoring and evaluation that would inform sound planning and implementation of interventions.

Bibliography

Edith Lyimo, Nathan Bakyaita, Christopher Simoonga, Graham Root " Report on the technical support to strengthen RBM Monitoring and Evaluation systems in Tanzania" 26th May – 06th June 2003.

Nathan Bakyaita, Khoti Gausi, John Govere, Etienne Magloire Minkoulou, Shiva Murugasampillay "Report on the technical support mission to strengthen Roll Back Malaria Monitoring and Evaluation system in Mozambique" 6th – 10th October 2003.

Edwin A. Afari, Aaron Offei, Etienne Magloire Minkoulou, Stephan A.Tohon "Report on the technical support to strengthen RBM Monitoring and Evaluation system in Nigeria"10 to 21 February 2003.

Edwin.A. Afari , Kennedy Chitala, M.E. Minkoulou, S.K.K. Lutalo "Report on the technical support to strengthen RBM Monitoring and Evaluation system in Uganda 27th - 31st January, 2003.

Edwin .A. Afari, Nathan Bakyaita, Etienne Minkoulou, Augustine Ngindu, "Report on the technical support to strengthen RBM Monitoring and Evaluation system in Kenya" 7th to 18th April, 2003

Edwin A. Afari, Ibrahima Soce Fall, Etienne Magloire Minkoulou, Stephan A. Tohon Report on the technical support to strengthen RBM Monitoring and Evaluation system in Ghana 13 to 24 January 2003

Etienne Magloire Minkoulou , Adama Coulibaly « Appui au processus de collecte des données de base pour le suivi et l'évaluation des interventions de lutte contre le paludisme au Mali : Bamako, 15 au 28 septembre 2003 ».

Etienne Magloire Minkoulou ,Stephan A Tohon « Mission d'appui technique a la Guinee pour le renforcement du systeme de monitoring et evaluation de "faire reculer le paludisme"Conakry, Guinée du 07 au 11 juillet 2003.

Etienne Magloire Minkoulou ,S. A Tohon Rapport de la mission d'appui technique a côte d'ivoire pour le renforcement du systeme de monitoring et evaluation de "faire reculer le paludisme"Dakar, du 13 au 24 Octobre 2003.

Etienne Magloire Minkoulou ,Stephan A. Tohon Mission d'appui technique au Togo pour le renforcement du systeme de monitoring et evaluation de "faire reculer le paludisme"Lomé, Togo du 23 au 27 Juin 2003.

I. S Fall, E .M Minkoulou Rapport de la mission d'appui technique au Burkina Faso pour le renforcement du systeme de monitoring et evaluation de "faire reculer le paludisme"ouagadougou, burkina faso du 21 février au 02 mars 2003 .

I. S Fall, E .M Minkoulou ,Rapport de la mission d'appui technique au senegal pour le renforcement du systeme de monitoring et evaluation de "faire reculer le paludisme"
Dakar, du 17 au 28 mars 2003.

Roll Back Malaria Framework for Monitoring Progress & Evaluating Outcomes and Impact 2000. Available online:
http://mosquito.who.int/cmc_upload/0/000/012/168/m_e_en.pdf

The Global Fund Monitoring and Evaluation Toolkit HIV/AIDS, Tuberculosis and Malaria June 2004. Available online:
http://www.theglobalfund.org/pdf/guidelines/pp_me_toolkit_en.pdf

Inter-Agency Group on Sector-Wide Approaches for Health Development (2001): Seminar handbook, orientation and training seminars for agency staff; sector-wide approaches for health in a changing environment. IHSD.

Final Report of the External Evaluation of Roll Back Malaria. Achieving Impact: Roll Back Malaria in the Next Phase. November 2002. Malaria Consortium.

MEASURE Evaluation (2000) Measuring capacity building in health and population programs; summary of a meeting held by MEASURE Evaluation, November 16-17, Arlington, VA.

MEASURE Evaluation (2003) ' A guide to monitoring and evaluation of capacity-building interventions in the health sector in developing countries"

WHO/AFRO (2003) "Roll Back Malaria Initiative in the WHO African Region Monitoring and Evaluation Guidelines"

Roll Back Malaria Monitoring and Evaluation Reference Group (MERG) website. 2004. Accessed on 26 November 2004. Available online: http://rbm.who.int/merg.

Roll Back Malaria, MEASURE *Evaluation*, World Health Organisation, UNICEF (2004) "Guidelines for core population coverage indicators for Roll Back Malaria: to be obtained from household surveys". Measure *Evaluation*: Calverton, Maryland. Available online:
http://rbm.who.int/partnership/wg/wg_monitoring/docs/GuidelinesForCorePopulationFINAL9-20_Malaria.pdf

WHO/AFRO (2004) "Report of workshop on M&E Systems for malaria control in the African region, Harare July 2004"

WHO/AFRO (2004) "Report of workshop on M&E Systems for malaria control in the African region, Dakar, August 2004"

Annex 1. Terms of reference

Overall purpose
Prepare a conceptual framework for strengthening monitoring and evaluation capacity at country and subregional levels

Specific terms of reference

Objectives of RBM monitoring and evaluation
Through a consultative process, identify the specific tasks, activities, products and objectives that national RBM monitoring and evaluation system must complete taking into consideration different epidemiological and institutional settings..

Issues and opportunities in monitoring and evaluation
Review existing systems and efforts to strengthen monitoring and evaluation of RBM and identify challenges and opportunities within them. Consideration should be given to the following:

- The organisation of malaria control within the Ministry of Health
- Ongoing health sector reform processes
- Monitoring and evaluation efforts of other programmes (e.g. EPI, HIV/AIDS, IMCI, RH, EDP)
- Capacity of country-levels partners (e.g. Central Statistics Offices, Research Institutions) to support monitoring and evaluation of RBM
- Global Fund and other external grant and loan monitoring plans and processes (e.g. WB loans)
- HMIS and IDS strengthening
- Work of partners (e.g. AFRO) to strengthen NMCP and Ministry of Health capacity in monitoring and evaluation
- Relevant training resources to build monitoring and evaluation capacity in countries and beyond

Approaches that can deliver
Prepare a conceptual framework that will strengthen NMCP and MOH capacity to monitor and evaluate RBM. This should include:

- Institutional and capacity development needs within NMCP and Ministries of Health
- Co-ordination of monitoring and evaluation processes in country including relevance of data collected, timeliness of analysis, and reporting and movement of data
- How the different options can strengthen monitoring the performance of the overall health system
- The role of partners in the region in data collection, management and analysis for different types of indicators and processes
- The role of routine data collection systems, sentinel districts and periodic surveys

Subregional level:

- Identify the core areas of support the subregional RBM networks and other institutions/mechanisms need to provide to countries in order to strengthen NMCP capacity in monitoring and evaluation of RBM
- Review how the subregional RBM networks should interface with the global RBM partnership and existing channels of reporting in reporting on implementation progress and core outcome and impact indicators
- With reference to the above, outline needs at subregional level to perform these roles

METHODOLOGY

1. Determine basic country-level M&E objectives for RBM in different epidemiological and institutional settings
2. Review existing documents and institutional knowledge to identify capacity needed to meet those objectives in different epidemiological and institutional settings
3. Develop country capacity needs assessment tool.
4. Use assessment tool to assess the programmes listed below (vertical, integrated, mixed)
5. At a consensus meeting, present results of the assessments and reach consensus on the priority capacity building needs overall and for countries individually
6. Finalise conceptual framework and present at next MERG meeting

A series of rapid country capacity assessments will be conducted. These case studies will capture a variety of programmatic and institutional settings and include:

- Vertical programmes – e.g. Botswana, Eritrea
- Integrated programmes – e.g. Uganda, Tanzania, Ghana
- Mixed programmes – e.g. Ethiopia, Kenya

Existing reports (e.g. AFRO M&E Country Support Missions, NMCP Annual Reports, RBM needs assessments etc) will be reviewed and, where possible, already planned fora and country visits will be used to conduct in-depth interviews with NMCPs and key country level stakeholders. In addition, *if necessary*, three country visits will be made.

Other MERG members who are part of this taskforce (WHO/AFRO, WHO/HQ, USAID, UNICEF, Wellcome Trust/KEMRI) as well as the Global Fund will be invited to participate in the country visits as well as to review, interpret and reach consensus on the findings and the necessary actions needed to develop country and subregional capacity. In particular, this writing of the report will be done jointly by WHO/AFRO and the Malaria Consortium.

Annex 2. Checklist for Assessing National Level RBM M&E Capacity Needs.

Country:
Name of Officer filling the questionnaire:
Designation/Position in the MCP/MOH:
Date:

1. Assessment of MCP capacity:

In the table below, please fill in the particulars of staff within your Programme. Please indicate those staff that are involved in RBM M&E.
Also indicate the particulars of staff that may not be based within the NMCP but assist you in RBM M&E.

Name of Staff	Designation	Qualifications

2. Do you have office space for:
a) The NMCP? Where is this space located and how many staff can it accommodate "comfortably"?
b) A data manager i.e. a desk with a computer and shelves plus filing cabinets to accommodate reports and other equipment?
If the answer is no, how are you managing the data collected?

3. Please specify in the table below the ICT equipment available to you such as computers, fax machines, telephone, Internet connectivity, photocopiers, etc

Equipment	Number	Capacity

4. What are your capacity needs in the following areas?
   a) Design of surveys
   b) Data collection
   c) Data analysis
   d) Data management

e) Report writing
f) Data utilisation
g) Monitoring of planned activities and financial accountability

5. Have you created a composite database to capture M&E data?
If yes, what have been the challenges of maintaining the database?
If No, why?

6. What in your view are the other key capacities that must be built at the national level in your country to strengthen RBM M&E?

METHODOLOGY

1. Make a presentation to the plenary, responding to the queries.
2. Listen to the country presentations, noting the capacity needs for M&E
3. Distribute questionnaires to country representatives and ask them to fill them and return them to you. Also ask workshop facilitators/partners on what they think are the capacity-development needs for M&E
4. Collate the results and compare with what we have so far.

Annex 3. Tabulated country responses of M&E needs assessment

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
ANGOLA	- 8 persons involved in RBM M&E activities and based in NMCP, including: the NMCP manager, 2 epidemiologists, 1 clinician, 1 entomologist and a parasitologist -	- Office space available for the NMCP within the National Direction of Public Health, but can suit only 6 persons - Data manager appointed and equipped	- Functional equipment available includes: 2 photocopy machines, 2 Desk top and 5 laptops - No phone, no fax, no internet connection	- Build capacity in data management, analysis - Establishment of a composite RBM M&E database - Strengthen the MCP capacity to coordinate M&E activities (Vehicles, materials, etc.)
BENIN	- 8 persons involved in RBM M&E activities including: a RBM M&E national focal person (MD based in NMCP), 1 data manager (economist statistician based in NMCP), and 6 regional focal points (MD)	- Office space available for the NMCP within the MOH - Data manager appointed and equipped	- 1 computer (Pentium 4) and a telephone are the only ICT equipment available at the NMCP - No phone, no internet connection	- Build capacity in survey design, data management analysis, as well as monitoring of planned activities and resources - Composite data set up but training of the data manager in data analysis needed
BURKINA FASO	- 3 persons in charge of M&E, including 1 senior health technician (NMCP), the NPO/MAL and the GFTAM focal person at UNDP (demographer) - A national advisory board for M&E put in place	- Office space available for the NMCP within the National Direction for Disease Control, but insufficient (can just fit 3 persons while there are more than that at NMCP) - Data manager appointed and equipped	- 4 desk tops, 2 laptops and photocopy machine - No phone, no internet connection	- Build capacity in data management - Composite data base for M&E set up but needs to be strengthened (improve timeliness and completeness - Update the national advisory committee on best practice of M&E

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
CAMEROON	- 5 persons involved: 1 M&E officer within NMCP (MD, Epidemiologist), 4 outside the NMCP (1 MD epidemiologist at Centre Pasteur, 2 at National Disease Control Direction (1 epidemiologist and 1 MD, MPH), 1 at OCEAC (Senior Health Technician) -	- Office space available (own buildings) that can fit up to 10 workers - No data manager appointed at the NMCP, data generated by districts are sent to provincial authorities and then to central level of the MOH where they are analysed	- 10 computers, 1 fax machine, 1 telephone line with internet connection (6 lines) but M&E not connected (no data manager) -	- Need for capacity building in data analysis (Epi info, Access, Health Mapper), data management and report writing, utilization of the SAM tool - Composite data base set up but need to strengthen the system of validation for M&E data - Training of provincial and district M&E officers
DJIBOUTI (From WHO/EMRO)	3 persons involved: 2 within the NMCP (the M&E focal person and responsible for vector control) and 1 outside (epidemiologist, Direction of Disease Control)	- No office space available for the NMCP, the NMCP currently operating with 2 rooms within the MOH (just enough for 2 persons - No data manager appointed, data collected by health centres are kept on hard copies, the Direction of planning hold some data - No M&E service in place but a system being created to merge M&E for HIV/AIDS, TB and Malaria	- 1 computer (Pentium 4), 1 telephone and 1 photocopy machine - No internet connection, no fax	- Build capacity especially human resources for M&E - No composite data base for RBM M&E in place so need to set it up
GUINNEE CONAKRY	- 8 persons (6 within NMCP, including the programme manager, the deputy coordinator, 1 epidemiology unit, 2 entomology unit and 1 parasitology unit), and 2 outside (1 NPO/MAL, 1 focal person for the NHIS (MD epidemiologist)	- Office space available for NMCP (Own buildings) that can fit up to 12 persons - Data manager in place and equipped -	- 1 desk top (32 GB), 2 laptops (18 GB), 1 printer (HP 1200) - No phone, no fax, no internet connection	- Need for capacity building in drug efficacy monitoring, monitoring of sensitivity of vectors to insecticides, design of population based surveys, health workers in sentinel sites and districts in data collection and management, monitoring of planned activities and resources as well as report writing, - Capacity building in planning

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
MADAGASCAR	- 5 persons involved, including the M&E officer of the NMCP, and 4 from outside (Planning unit, Division of outbreaks control, NHIS and the surveillance section of the MOH) -	- Office space available for the NMCP within the Direction of Malaria, Leprosy and TB control; can fit up to 10 persons - No data manager in place at the NMCP, data collected from divisions, partners and by consulting archives -	- 9 computers, 1 telephone, no fax, Internet connection (9 lines), 1 photocopy machine -	- Needs for logistical support (materials, building refurbishment, etc.), strengthen capacity in data management and sharing (communication) - Setting up a national M&E composite data base needed - Reinforce coordination of RBM M&E and relocate it at the NMCP - Need for more financial support
MALI	- 3 persons involved within the NMCP, including the M&E Officer (MD), the NMCP manager and an IC (data manager) -	- Office space available within the National Health Direction that can fit up to 8 persons - Data manager not operational, data being collected through NHIS, provincial health directions as well as referral health centres	- 8 computers (1 Pentium 4 and 7 Pentium 3), 1 telephone with Internet connection, 1 photocopy machine and no fax -	- Need for training in survey designs, data handling and analysis, data management and use of special software - A composite national data base for RBM M&E set up but updating represent a challenge
NIGER	- 8 persons (7 within the NMCP, including the NMCP manager and the NPO/MAL) -	- Office space available that can fit up to 15 (for more than 30 staff members) - A data manager put in place	- 6 computers, 3 printers, 1 fax machine, 4 telephones, 2 line internet connection -	- No composite RBM M&E data base set up so need to strengthen the national coordination capacity - Need for training of NMCP staff in applied epidemiology

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
DR CONGO	- 2 persons in charge within NMCP (MDs) -	- Office space available that can fit 15 staff members - No data manager in place, data on morbidity and mortality being collected through the 4th Direction (IDSR/MOH), data on drug efficacy and side effects through sentinel sites and partners	- 1 photocopy machine - No telephone, no fax, no internet connection - 1 desk top and 2 laptops	- Need for strengthening capacity in survey design, use of appropriate tools including software, training in epidemiology - Put in place a data manager - Need support to set a national composite data base within the NMCP (computers, communication equipments, etc.) - Need for the training of national consultants for M&E - Strengthen M&E capacity in partners counter parts
SENEGAL	- 5 persons involved including the M&E officer within the Division of Communicable Diseases, the focal person in CAS/PNDS, 1 in DREF and 2 PNLP staff members including a data manager - A M&E commission has been put in place	- Office space available (own buildings) that can fit 10 persons - No data manager at the NMCP, data collection through collaboration with DERF (where the data manager is based)	- 13 computers, 1 fax machine, 2 line telephone with internet connection, 1 photocopy machine -	- Need for capacity building in survey design, data analysis, report writing, monitoring of planned activities and resources, maintenance of the data base - Training in Epidemiology
TOGO	- Persons involved (2 within NMCP including the manager and the M&E officer; 8 at WHO (ICP-MAL & NPO/MAL), UNDP, UNICEF, University, URD, and 1 IT at Direction of Primary Health Care (Data manager)	- Office space available for the NMCP that can fit 8 staff members - No data manager in place, data collected through the NHIS, ongoing efforts to strengthen the data handling system with MMCP	- 2 computers, 1 telephone, 1 fax machine - 1 photocopy machine but not functional	- Need for strengthening capacity in survey design, data collection and management as well as report writing - Training of provincial and district M&E focal persons - Training of staff in Public Health, Epidemiology, Malariology and Informatics

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
UGANDA	6 Technical staff working full time with the MCP 1 MEFP with MPH 1 Information officer/data manager	NMCP has officer space for all officers. Additional space has been mobilised for the MCP using funds from RBM Secretariat.	4 old desk top computers 2 laptop computers Internet connectivity for all the computers 1 Fax I direct telephone line for the programme manager Rest of staff connected to MOH intercom and have personal mobile phones	Data management and analysis Training in use of appropriate data management software for all MCP staff and Data Manager in particular. Training in epidemiology Computers and appropriate software.
ETHIOPIA	7 staff from the MCP and other departments within the MOH involved in M&E.	Office space for 6 staff at MOH ?No space for data manager	3 desktop computers 2 laptop computers Composite database created but not in use. They need to field-test it??	Data management skills at the national and regional levels Appointment of a data manager Establishment of strong M&E partnership and networking.
GHANA	3 staff for M&E	Office space provided to the NMCP by WHO Accra. Data manager has adequate space RBM composite database not used because the NHMIS system formats differ with those of the composite database.	1 laptop computer 1 telephone line, no fax No internet connectivity 1 shared photocopier	Data management and utilisation Networking skills Training in use of software such as Epiinfo, Healthmapper.

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
KENYA	Have 4 people involved in RBM M&E activities based in the NMCP, including an M&E officer, 2 data entry clerks. Other staff involved in M&E include the PM, Deputy P M (an epidemiologist) and an entomologist.	The NMCP has an independent block that can house 12 staff. They have more than this number at the moment. The data manager has a desk, computer but no space for filing reports.	10 computers all connected to the internet. Have fax and direct telephone line which work on and off due to insufficient funds to pay the service providers. Composite database previously created but not used.	Build capacity in data management, analysis and report writing. Build system for monitoring of planned activities and data utilisation, including skills in appropriate packaging of data. Need vehicles for coordinating M&E activities and better computers. Increase capacity at the provincial level for RBM M&E.
MALAWI	4 staff for RBM M&E that include one epidemiologist and 3 HMIS officers.	MCP is housed in the Community Health Sciences unit	1 borrowed computer 1 telephone line shared by 6 officers	Data management and analysis Need resources and more personnel
MOZAMBIQUE	Have one person involved in M&E. He is an epidemiologist and Deputy Director of the NMCP.	No office space for M&E No space for filing reports	4 computers, with one of them connected to the Internet. 1 photocopier Composite database created but not used.	Need an M&E Focal person Improvement in the ICT equipment Appropriate office/ working space.
NIGERIA	4 staff involved in RBM M&E. One of them is a Deputy Director and the other three are laboratory scientists (1), medical Parasitologists (2). One of the parasitologists also doubles as the data manager. Staff from other departments support the NMCP M&E through their participation in the RBM M&E network.	Then NMCP M&E is located outside the Federal secretariat and can accommodate 4 persons. The data manager has office space.	3 desktop computers, 1 laptop computer, 1 heavy duty photocopier, 1 fax machine, 3 printers, a UPS, 4 stabilisers, 1 LCD projector.	Data management and analysis including training in use of appropriate data management software. Employ data entry clerks

COUNTRY	NMCP CAPACITY	AVAILABILITY OF OFFICE SPACE	STATUS OF ICT EQUIPMENT	EXPRESSED CAPACITY NEEDS
TANZANIA	4 staff involved in M&E include M&E focal MSc, Expatriate Technical officer, technical assistant and data manager. 3 staff outside NMCP offer technical assistance on adhoc basis. They include 2 scientists and an HMIS statistician.	NMCP has new office block within the NIMR compound that can accommodate up to 30 staff. Data manager has adequate officer space for a computer and filing cabinets. Have created an RBM composite database but hampered by late submission of reports form the sub-national levels.	3 desk top computers 1 laptop computer 1 telephone/fax line Internet connectivity to one computer 1 photocopier	Design of surveys for two officers in the NMCP& DHMT and RHMT levels. Train 2 staff from the M&E cell in epidemiology Better computer hardware and software Improve internet connectivity.
ZAMBIA	6 staff form the NMCP and research institutions involved in RBM M&E. An epidemiologist in MCP Data manager recruitment process quite advanced.	Some office space within a hospital complex. New structure under construction to create more space.	1 desk top computer 1 printer 1 telephone and fax machine shared with others. Irregular internet connectivity GPS handsets, map printer	Networking with other programs Capturing M&E data from partners with data useful for malaria M&E. Production of epidemiological reports on a regular basis. Information sharing with partners.
ZIMBABWE	8 staff in the NMCP. Have 1 data officer.	NMCP has an office at the MOHCW and have space for 4 officers but need additional space for 4 officers.	3 desk top computers, with 2 connected to the internet 2 laptop computers 1 fax, 4 telephone lines	Survey design and implementation Data management and analysis skills training Need appropriate hard and software. Appoint/designate an M&E focal person Training in M&E.

Annex 4. Job descriptions for positions within an M&E Cell

Below are illustrative job descriptions for key positions within an M&E Cell of an NMCP.

1. Monitoring and Evaluation Focal Person

a. Coordinate M&E activities within the NMCP and act as a liaison with the RBM M&E Subcommittee
b. Assist to collect, collate and analyse data for RBM M&E including assessing the quality of reports generated.
c. Generate periodic reports for the Programme Manager, Ministry of Health and Partners (national, regional and global) assisted by the Information Officer/Data Manager.
d. Oversee the national RBM composite database
e. Liaise with other programmes and institutions to promote the collection of relevant information for M&E including ensuring survey-based coverage estimates are conducted, and other in-country partners implementing interventions are appropriately channelling relevant information to the NMCP.
f. Assist the RBM M&E Subcommittee in the co-ordination of various research studies, surveys and departments in the Ministry of Health to ensure that the information collected is comparable and consistent with the needs of the NMCP
g. Supervise the Information Officer/Data Manager.

2. Data Manager/Information Officer

a. In close collaboration with the NMCP manager and officers, maintain, update and where necessary establish a database system of information relevant to work of the NMCP that is consistent/compatible with other databases in the Ministry of Health.
b. Liaise closely with HMIS on the data needs of the programme and exchange data relevant to malaria control activities.
c. Collect data and reports from other programmes that are relevant to malaria control activities such as IMCI, Pharmacy, Reproductive Health, etc and update the NMCP database.
d. Assist the M&E Focal Person in the preparation and dissemination of reports
e. Collate and utilise data received from the national and subnational levels to form the basis of reports that can be used for reporting by the NMCP manager, the RBM M&E Subcommittee and other NMCP members
f. Prepare reports on malaria control implementation activities for the Planning Department that can be used for Ministry of Health quarterly reports, the Health Policy Advisory Committee (HPAC), Joint Review Missions etc.
g. Further develop and update an inventory of all equipment in the malaria control programme and ensure that all ICT equipment in the programme is well maintained and the data it holds protected
h. Validate data entered by the data entry clerks
i. Supervise the work of the data entry clerks.

3. Data Entry Clerks

a. Enter all data on computer and submit electronic files to the information officer/data manager
b. Organise filing system and ensure safe storage for both electronic and paper copies of available malaria data.